

IMIM

Hospital del Mar Medical Research Institute Barcelona 2014



Institut Hospital del Mar
d'Investigacions Mèdiques



© Hospital del Mar Medical Research Institute (IMIM)

Hospital del Mar Medical Research Institute (IMIM)

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Introduction

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Miguel López-Botet

IMIM Director



The year 2014 commenced with IMIM's accreditation as an "Instituto de Investigación Sanitaria-IIS" (Health Care Research Institute) by the Instituto de Salud Carlos III, Ministerio de Economía y Competitividad (MINECO). I would like to sincerely acknowledge the endeavors of all those people who made positive contributions to this complicated process.

In terms of scientific production, IMIM's activity in 2014 stood at encouraging levels, reaching 850 indexed publications with >60% in the first quartile of the

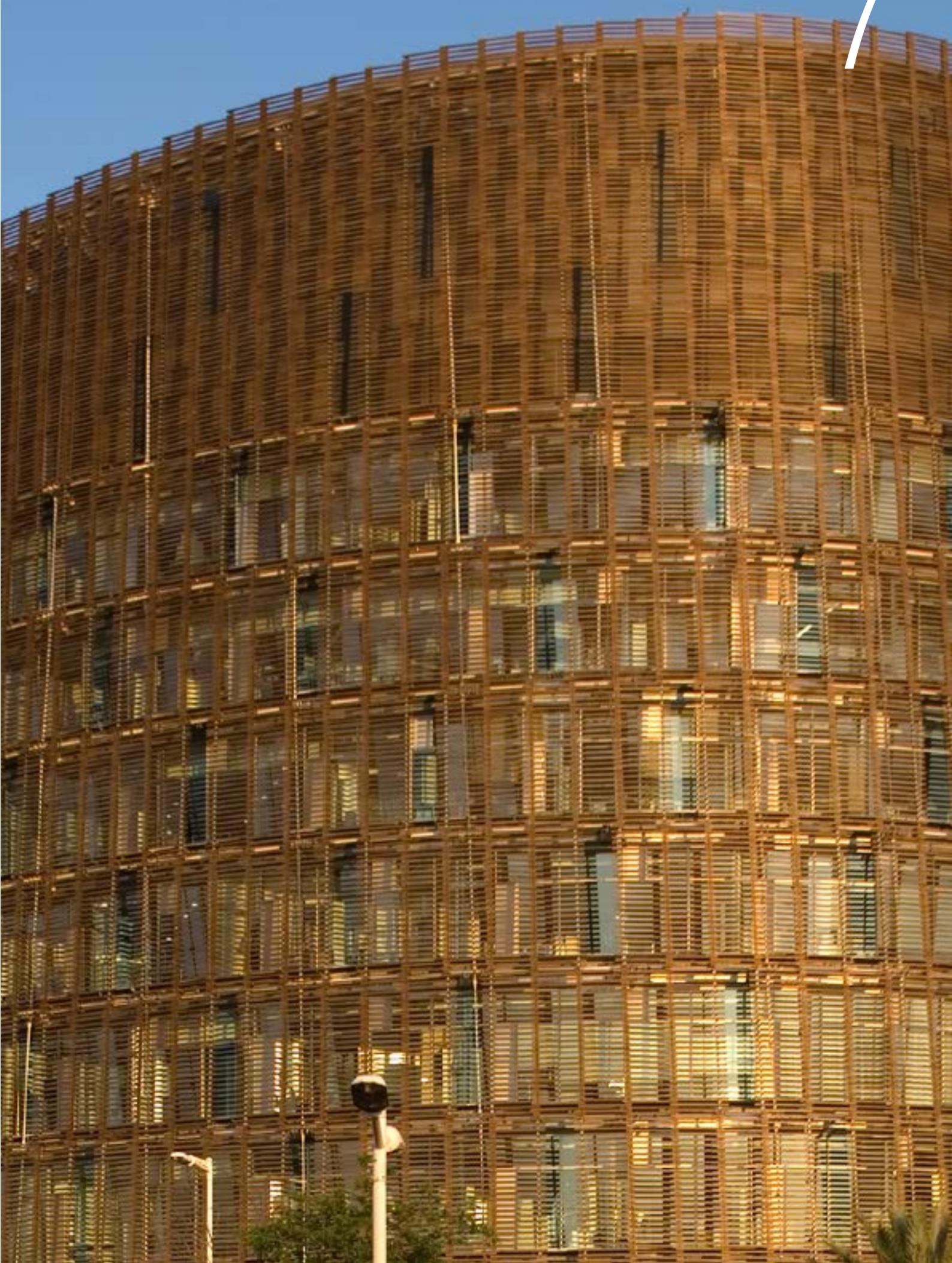
individual subject impact factor (IF) distribution (ISI Science Citation Reports). The Scimago indicators (www.scimagoir.com) unequivocally reflect the IMIM's outstanding position among Spanish biomedical research centers. In comparison with 2013, competitive funding decreased only slightly and the number of signed clinical trial agreements and competitive human resources contracts tended to remain stable. However, the success rate in the EU Horizon 2020 calls did not satisfy expectations and the returns derived from accreditation were quite modest in comparison with the structural funding levels formerly provided to the IIS. Concerning transfer activities, new patenting actions were undertaken and licensing agreements established. Communications to the media and dissemination actions were as well satisfactory.

A one-day retreat bringing together representative researchers from the different IMIM programs and members of the administration was organized in February. Following a thorough analysis of the background, present situation and perspectives, a diagnosis of the structural and financial constraints to be overcome in order to secure the future competitiveness of IMIM was achieved. Conclusions and proposals to be taken into account from a strategic standpoint were outlined; their effective implementation requires overcoming of the current economic difficulties.

In this regard, although the restrictions applied throughout 2014 partially rebalanced the financial situation, satisfying the Board of Directors (Patronat de la FIMIM), additional measures are warranted to ensure the institution's sustainability. Among other actions, outsourcing the management of the Doping Control Laboratory. In this matter, a satisfactory outcome is expected to be achieved in 2015, as a result of the joint efforts of IMIM, PSMar and the Health Department of the Catalan Government.

Nine years following my appointment as Director of IMIM, I remain confident regarding our potential to continue to feature among the most outstanding biomedical research institutes in Spain.

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An overview of 2014



Researchers



Technicians



Pre-doctorals



Support

689

Personnel

48,5%

26,4%

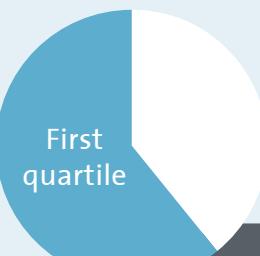
15,1%

10%



14,7
M€

4,005
IF Accumulated



850
Articles with IF

926
Publications



59
Doctoral
Theses Read



1,299
Items Recorded
in the Media



Scientific Advisory Board

IMIM has a Scientific Advisory Board (SAB) made up of a group of prestigious international expert scientists from the different areas of the IMIM research programmes.

President

Alberto Mantovani M.D.

*State University of Milan. Istituto Clinico Humanitas
(Rozzano, Milan, Italy)*

Members

Antonio Bernad Ph.D.

*National Center for Cardiovascular Research (CNIC),
(Madrid, Spain)*

Søren Brunak Ph.D.

*Center for Biological Sequence Analysis, Technical
University of Denmark (Lyngby, Denmark)*

Ángel Carracedo M.D., Ph.D.

University of Santiago de Compostela (Spain)

Jean Ferrières M.D. MSc.

*Toulouse University School of Medicine. Toulouse
University Hospital (Toulouse, France)*

Anna Lluch M.D., Ph.D.

*Hospital Clínico Universitario, University of Valencia
(Spain)*

John Kane M.D.

*The Zucker Hillside Hospital. The Albert Einstein
College of Medicine (New York, USA)*

Tudor Oprea M.D. PhD.

*University of New Mexico School of Medicine
(Albuquerque, USA)*

Carlos López Otín Ph.D.

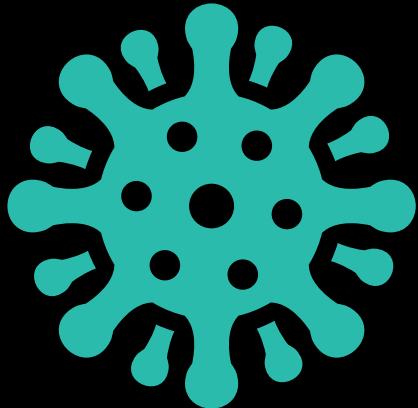
Institute of Oncology, University of Oviedo (Spain)

Francisco Sánchez Madrid Ph.D.

*Hospital Universitario de la Princesa, Autonomous
University of Madrid (Spain)*

Rodolfo Saracci M.D.

*Institute of Clinical Physiology, National Research
Council (Pisa, Italy). University of Aarhus (Denmark)*



PROGRAMME

Cancer

The programme is made up of the following research groups:

Apoptotic Signaling
Gabriel Gil

Applied Clinical Research in Hematological Malignancies
Carles Besses

Chromatin Dynamics in Cancer Cells
Sandra Peiró

Colorectal Cancer
Miguel Pera

Epithelial-Mesenchymal Transition in Tumor Development
Antonio García de Herreros

Gastroesophageal Carcinogenesis
Carme de Bolós

Genitourinary Cancer
Josep Lloreta

Localised Hyperthermia Therapies
Fernando Burdío

Molecular Cancer Therapeutics
Joan Albanell

Molecular Mechanisms of Lung Cancer Predisposition
Esther Barreiro

Molecular Mechanisms of Tumorigenesis
Pilar Navarro

Poly (ADP-Ribose) Polymerases
José Yélamos

Stem Cells and Cancer
Anna Bigas, Lluís Espinosa

Translational Research in Colorectal Neoplasia
Montserrat Andreu

Translational Research in Hematologic Neoplasms Group
Lourdes Florensa

The programme is organized into three complementary levels (basic, preclinical and clinical research) and composed by 15 groups from the Hospital del Mar Medical Research Institute (IMIM). Group leaders include basic scientists, digestologists, haematologists, immunologists, medical oncologists, pathologists, pneumologists, and surgeons, resulting in a multidisciplinary programme that allows the undertaking of collaborative projects focused on clinically important

questions. The ultimate goal for most investigators on this programme is to work at the interface between laboratory and clinic, with priority given to translational research.

All the groups with the exception of the newly created group of Sandra Peiró are recognized by the Government of Catalonia's research grant agency (AGAUR) and five (led by Albanell, Bigas, Espinet, García de Herreros and Besses) are recognized and funded by the Spanish Network for Cancer Research (ISCIII).



Joan Albanell
Programme Director

► Overall Scientific Objectives and Strategy

We aim to offer novel discoveries that may be a step forward for personalized medicine across a number of (but not limited to) highly prevalent cancer types, including breast, colon, lung, prostate and bladder cancers, as well as chronic myeloproliferative diseases and lymphoma. These different cancers are a good representation of the main types in which our institute has both clinical and research expertise.

Our overall strategy includes: (i) Interrogate clinical specimens using high-throughput screening technologies and then go back to the lab, and (ii) Develop hypothesis-based studies in preclinical models and test salient findings in clinical specimens. The basic research groups should study and validate mechanistically the findings of the other groups and also provide translational hypotheses on their current main areas (EMT, NF-κB and oncogenic signaling, among others). We also aim to incorporate, by means of collaboration with other programmes, immunology research (Inflammatory and Cardiovascular Disorders Programme), bioinformatics (Biomedical Informatics

Programme) and epidemiology (Epidemiology and Public Health Programme).

► Overall Technological Objectives

The aims are to develop novel biomarkers for cancer prevention, diagnosis and treatment selection, and develop novel therapeutic strategies, based on the discovery of novel mechanisms of cancer initiation or progression, as well as on translational and clinical studies.

► Overall Educational Objectives

The combination of researchers with different areas of training (basic, translational and clinical) aims to result in both scientists with a clinical perspective and clinicians that understand science. A number of internal and external collaborations have been established, including national and international collaborations.

Main Results Achieved in 2014

► Science, Scientific Production

The total scientific production of the Cancer Research Programme

investigators was 212 articles, of which 128 were published in first quartile journals. Of the total number of papers, 31 (15%) were signed by two or more groups of the program and 34 (16%) by a Cancer Programme group and at least another group of the Institute.

► Science, Approved Research Projects

The total number of approved research projects of the Cancer Research Programme investigators was 19. Of these projects, 9 were financed by ISCIII: Spanish Ministry of Health (7 FIS projects) and the Spanish Ministry of Science and Innovation/RETOS (2). The rest of the projects were funded by private funding: FERO (1), Fundación Eugenio Pascual (1), Celgene (1), Fundación Mutua Madrileña (1), Fundación Española de Coloproctología (1).

Under Horizon 2020, some of us have applied for EU grants for the project entitled MedBioinformatics (coordinator Prof. Ferran Sanz, IMIM-UPF Research Programme on Biomedical Informatics - GRIB). This project aims to develop useful bioinformatics tools and applications for analyzing the huge amount of data and knowledge generated in health care and biomedical research, in order

to facilitate translational research and precision medicine in oncology and neuropsychiatry. This project has just been funded.

► Science, networking activities

The Cancer Research Programme investigators have participated in European and national research networks to foster a culture of networking and cooperation between European and national researchers and institutions operating in the same fields. The networks are the following: European LeukemiaNet WP9, Myeloproliferative Neoplasms; European Hematology Association, Scientific Working Group on Myeloproliferative Neoplasms; European Cytogeneticists Association (ECA); Cytogenetic European Quality Assessment (CEQA), Mature B&T Cell Neoplasms; ITEMAS; Apored; Spanish Society of Hematology and Hemotherapy (SEHH); Spanish Hematological Cytogenetics Cooperative Group (GCECGH); Spanish Hematological Cytology Group (GECH); Spanish Chronic Lymphocytic Leukemia Group (GELLC); Spanish Myelodysplastic Syndromes Group (GESMD); Splenic B-cell Lymphoma Group (SBLG); Spanish Association of

Human Genetics (AEGH); Lymphoma Group of the Spanish Association of Dermatology and Venereology (AEDV); Respiratory Research Network of Excellence (CIBERES).

► Phase I trials, added value

A strong source of added value in the Cancer Research Programme is the development of phase I clinical trials. A Platform for Phase I Clinical Trials exists at IMIM (led by M. Farré, Neurosciences Programme) and has made it possible to attract highly competitive phase I trials. Today, both medical oncology and hematology are reference departments for early clinical drug development, including first-in-human first-in-class, pharmacokinetic and pharmacodynamic trials. Due to the growing recognition of the site for phase I trials, additional facilities were set up in the main Hospital building in 2013. In 2014, four phase I trials were initiated simultaneously with 46 clinical trials encompassing different phases; the vast majority were phase II and III trials, although phase 0 proof-of-concept trials (11) were also initiated.

► Technology

EGFR mutations reported and patented in 2012 as a result of a tumor resistance research project in colorectal cancer (Montagut et al. *Nature Medicine* 2012) were licensed (non-exclusively) in 2013 to a Belgian company, Biocartis, as predictive markers of resistance to cetuximab. This license is now at the national phase in Australia, Brasil, China, Russia, Austria, Japan, Korea, New Zealand, Canada and Europe.

In 2014, we also established 11 contracts with industry for activities ranging from R&D (i.e., developing novel agents in the laboratory/translational setting), to becoming a national reference site for testing clinically actionable biomarkers in the context of our leading pathology department at Hospital del Mar. In addition, 7 material transfer agreements were signed.

► Patents

Two patents have been submitted:

- Fundació Institut del Mar d'Investigacions Mèdiques (IMIM). Hepatocyte Growth factor as marker of prognosis in small cell lung cancer (SCLC).

Arriola, Edurne; Cañadas, Israel; Rovira, Ana; Albanell, Joan. European Patent Office. 24/04/2014. P2978PCoo.

- Fundació Institut del Mar d'Investigacions Mèdiques (IMIM). Mutations in the extracellular domain III of epidermal growth factor receptor gene. Montagut, Clara; Bellosillo, Beatriz; Rovira, Ana; Albanell, Joan; Dalmases, Alba. European Patent Office. 28/07/2014. EP14382288.

► Education

A total of 12 doctoral thesis were defended in 2014.

Weekly meetings were held in the programme where PhD students and post-doctoral researchers present their projects and ongoing work.

Monthly meetings were held in the programme where principal investigators from outside of the institution are invited to share the important issues and results in their areas of expertise.

The programme coordinator, as UPF professor, submitted in 2013 a proposal for a Master of Translational and Applied Oncology to ANECA, with the direct support of the UPF Medical Sciences Dean and as part of the multi-university

Master's programme coordinated by the UB, the UAB and the UPF. The proposal was officially approved this year.

► Expert opinions

Members of the programme participate in various scientific and medical societies, and are authors of position papers or members of committees establishing recommendations. The programme coordinator is a board member of the Cancer Master Plan for Catalonia.

► Media impact

An important goal of current research is to share with the public the results of society's investment in research. In 2014, investigators of the Cancer Research Programme achieved 190 media impacts, distributed as follows: general written press, 18; specialized written press, 6; general portal, 82; health portal, 16; general blog, 5; health blog, 5; radio, 2; television, 3; journals, 3; agencies, 4; social networks, 46.

► Election of members of Committees

Anna Bigas was elected to the European Molecular Biology Organization (EMBO) membership.

Apoptotic Signaling

RESEARCH GROUP

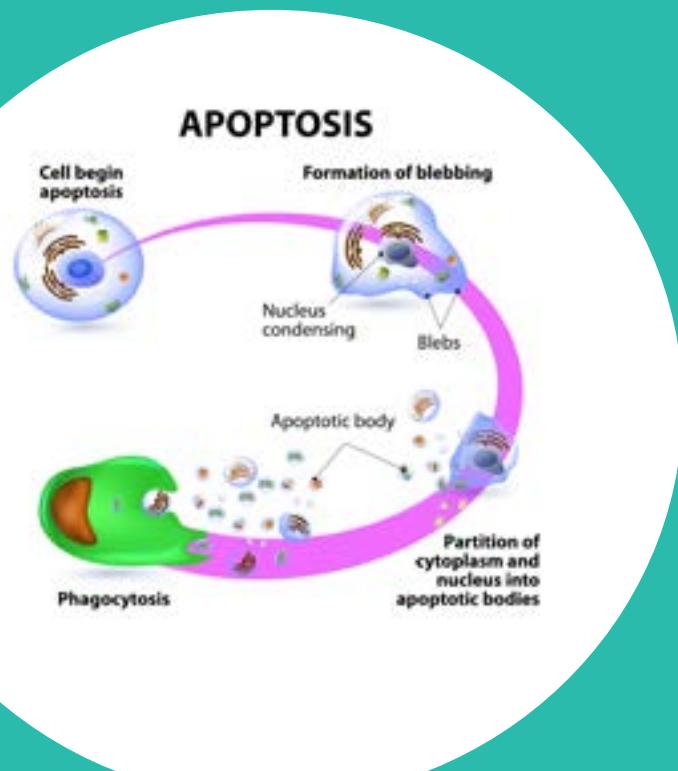


Coordinator

Gabriel Gil Gómez

Members

Marc Núñez Ollé



Dysregulation of DNA damage repair and signaling to cell cycle checkpoints is associated with a predisposition to cancer and affects responses to DNA-damaging anticancer therapy. We are characterizing the role of Cyclin O, a member of the cyclin family, in the integration of different responses that affect the integrity of the genetic information of the cell. Cyclin O has a role in the regulation of DNA damage repair and in the activation of cellular DNA damage checkpoints. Cyclin O is also a crucial regulator of the generation of multiciliated cells. It is necessary for the amplification of centrioles, the apical docking of basal bodies and for the function of ciliogenic transcription factors. In accordance with this, overexpression of Cyclin O in human tumors may be linked to the generation of aberrant spindles and, as a consequence, to the appearance of aneuploidy and genomic instability.

Main Publications 2014

- Piñol I, Torres A, Gil-Gómez G, Prats E, Puig-Verdie L, Hinarejos P. Polyethylene particles in joint fluid and osteolysis in revision total knee arthroplasty. *Knee* 2014;21(2):402-405. IF 1.702. Q2.
- Tajes M, Eraso-Pichot A, Rubio-Moscardó F, Guivernau B, Ramos-Fernández E, Bosch-Morató M, Guix FX, Clarimón J, Miscione GP, Boada M, Gil-Gómez G, Suzuki T, Molina H, Villà-Freixa J, Vicente R, Muñoz FJ. Methylglyoxal Produced by Amyloid β -Peptide-Induced Nitrotyrosination of Triosephosphate Isomerase Triggers Neuronal Death in Alzheimer Disease. *J Alzheimers Dis* 2014;41(1):273-288. IF 3.612. Q2.

Ongoing Research Projects 2014

- Paper de la Ciclina O en l'Atàxia-Telangiectàsia (ORPHA100).
 - > Fundació La Marató de TV3 (100610)
 - > Principal researcher: Gil Gómez, Gabriel
- Autoinmunidad, inflamación y cáncer: el papel mediador de la Ciclina O y su posible aplicación clínica como indicador temprano de transformación tumoral.
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/00864)
 - > Principal researcher: Gil Gómez, Gabriel

Participation in Research Networks

- Member of Apored: Red Española de Apoptosis (<http://www.apored.es/areas/cancer/ggil/ggil.html>)

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Apoptosi, autoimmunitat i transformació epitelial. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 136)
 - > Principal researcher: Gil Gómez, Gabriel

Applied Clinical Research in Hematological Malignancies

RESEARCH GROUP

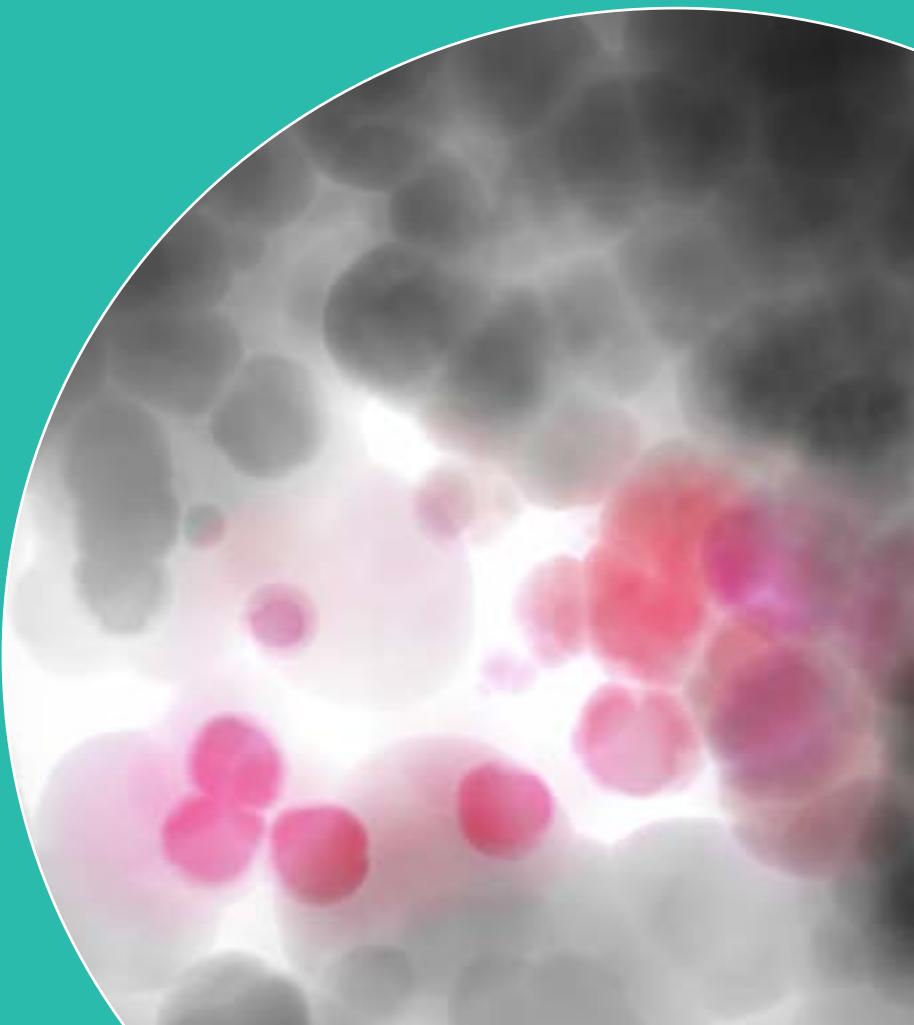


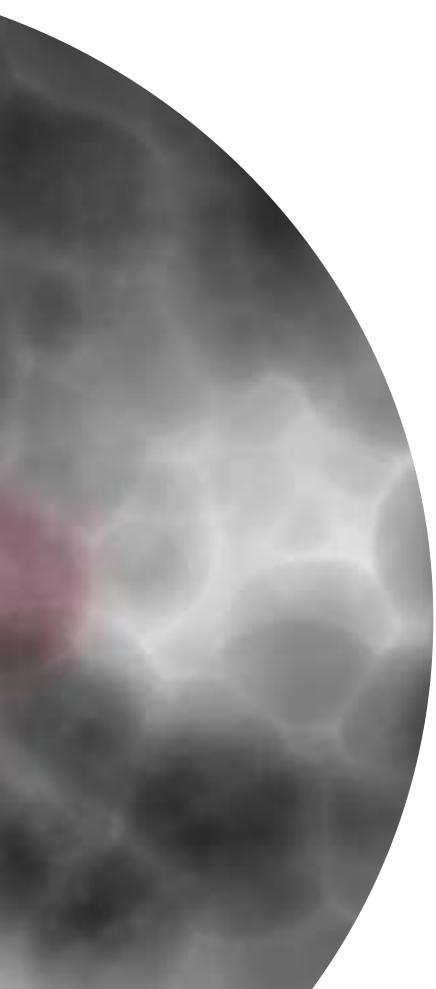
Coordinator

Carles Besses Raebel

Members

Eugènia Abella Monreal
Alberto Álvarez Larrán
Beatriz Bellosillo Paricio
Randa Ben Azaiz Ben Lahsen
Laura Camacho Díaz
M. Concepción Fernández Rodríguez
Francesc García Pallarols
Eva Gimeno Vázquez
Carmen Jiménez Martínez
Luz María Martínez Avilés
Anna Maria Massó Carreras
Sílvia Pairet García
Gabriel Piquer Velasco
Antonio Salar Silvestre
Blanca Sánchez González
María Elena Torres Grande





The group is studying molecular markers in chronic myeloproliferative neoplasms, mainly JAK2 mutations, but also mutations in epigenetic modifiers and genes involved in the splicing machinery, and their role in monitoring response to cytoreductive therapy, and in the prognosis of the patients. In addition, the group is searching for new mutations using exome sequencing techniques in those patients unmutated for JAK2, CALR and MPL genes. Another area of research is the effect of new drugs in *ex vivo* cultures of neoplastic lymphoid cells obtained from lymphoma patients and to determine the mechanisms underlying response/resistance, and identification of potential synergistic combinations.

Main Publications 2014

- Álvarez-Larrán A, Ancochea A, García M, Climent F, Garcia-Pallarols F, Angona A, Senin A, Barranco C, Martínez-Avilés L, Serrano S, Bellosillo B, Besses C. WHO-histological criteria for myeloproliferative neoplasms: reproducibility, diagnostic accuracy and correlation with gene mutations and clinical outcomes. *Br J Haematol* 2014;166(6):911-919. IF 4.959. Q1.
- Álvarez-Larrán A, Besses C. Antiplatelet therapy in the management of myeloproliferative neoplasms. *Curr Hematol Malig Rep* 2014;9(4):319-323. IF 2.286. Q3.
- Ancochea A, Álvarez-Larrán A, Morales-Indian C, Garcia-Pallarols F, Martínez-Avilés L, Angona A, Senin A, Bellosillo B, Besses C. The role of serum erythropoietin level and JAK2V617F allele burden in the diagnosis of polycythaemia vera. *Br J Haematol* 2014;167(3):411-417. IF 4.959. Q1.
- Fernández-Rodríguez C, Bellosillo B, García-García M, Sánchez-González B, Gimeno E, Vela MC, Serrano S, Besses C, Salar A. MYD88 (L265P) mutation is an independent prognostic factor for outcome in patients with diffuse large B-cell lymphoma. *Leukemia* 2014;28(10):2104-2106. IF 9.379. Q1.
- Gugliotta L, Besses C, Griesshammer M, Harrison C, Kiladjian JJ, Coll R, Smith J, Abhyankar B, Birgegard G. Combination therapy of hydroxycarbamide with anagrelide in patients with essential thrombocythemia in the evaluation of Xagrid® efficacy and long-term safety study. *Haematologica* 2014;99(4):679-687. IF 5.868. Q1.
- Muñiz C, Martín-Martín L, López A, Sánchez-González B, Salar A, Almeida J, Sancho JM, Ribera JM, Heras C, Peñalver FJ, Gómez M, González-Barca E, Alonso N, Navarro B, Olave T, Sala F, Conde E, Márquez JA, Cabezudo E, Cladera A, García-Malo M, Caballero MD, Orfao A. Contribution of cerebrospinal fluid sCD19 levels to the detection of CNS lymphoma and its impact on disease outcome. *Blood* 2014;123(12):1864-1869. IF 9.775. Q1.
- Salar A, Avivi I, Bittner B, Bouabdallah R, Brewster M, Catalani O, Follows G, Haynes A, Hourcade-Potelleret F, Janikova A, Larouche JF, McIntyre C, Pedersen M, Pereira J, Savyed P, Shpilberg O, Tumyan G. Comparison of subcutaneous versus intravenous administration of rituximab as maintenance treatment

- for follicular lymphoma: results from a two-stage, phase IB study. *J Clin Oncol* 2014;32(17):1782-1791. IF 17.879. Q1.
- Sánchez-González B, Gimeno E, García-Pallarols F, Ancochea A, Salar A. Usefulness of second rituximab maintenance after relapse in patients with follicular and mantle cell lymphoma. *Leukemia Lymphoma* 2014;55(10):2384-2386. IF 2.605. Q2.
 - Wilson WH, Bromberg JE, Stetler-Stevenson M, Steinberg SM, Martin-Martin L, Muñiz L, Sancho JM, Caballero MD, Davidis MA, Brooimans RA, Sánchez-González B, Salar A, González-Barca E, Ribera JM, Shovlin M, Filie A, Dunleavy K, Mehrling T, Spina M, Orfao A. Detection and outcome of occult leptomeningeal disease in diffuse large B-cell lymphoma and Burkitt lymphoma. *Haematologica* 2014;99(7):1228-1235. IF 5.868. Q1.

Ongoing Research Projects 2014

- Factores que influyen en la evolución de la carga alélica de JAK2V617F en neoplasias mieloproliferativas
 - > Fondo de Investigación Sanitaria. ISCIII (PI10/01807)
 - > Principal researcher: Besses Raebel, Carles

- Molecular characterization of Non-Small Cell Lung Cancer (NSCLC) KRAS mutant tumors: clinical implications of new biomarkers
 - > Fundació La Marató de TV3 (20130530)
 - > Principal researcher: Bellosillo Paricio, Beatriz
- Estudio de la evolución clonal molecular mediante análisis de secuenciación masiva en neoplasias mieloproliferativas JAK2V617F positivas y su correlación con la carga de JAK2V617F.
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/00557)
 - > Principal researcher: Álvarez Larrán, Alberto
- Caracterización de la trombocitemia esencial jak2v617f y mpl negativa mediante secuenciación del exoma.
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/00393)
 - > Principal researcher: Bellosillo Paricio, Beatriz

Participation in Research Networks

- European LeukemiaNet WP9, Myeloproliferative Neoplasms
- Red Temática de Investigación Cooperativa en Cáncer
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS (RD12/0036/0010)
 - > Principal researcher: Besses Raebel, Carles



Cancer

Applied Clinical Research in Hematological Malignancies

- European Hematology Association, Scientific Working Group on Myeloproliferative Neoplasms

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Clínica Aplicada en Hematología. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 567)
 - > Principal researcher: Besses Raebel, Carles

Clinical Trials Signed in 2014

- Phase I studies: 1 (2014/5676)
- Phase I-II studies: 1 (2014/5607)
- Phase II studies: 2 (2014/5728, 2014/5682)
- Phase III studies: 5 (2013/5333, 2013/5150, 2014/5677, 2014/5726, 2014/5648)
- Observational studies: 5 (2013/5436, 2014/5523, 2013/5224, 2014/5685, 2014/5917)

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Chromatin Dynamics in Cancer Cells

RESEARCH GROUP



Coordinator

Sandra Peiró Sales

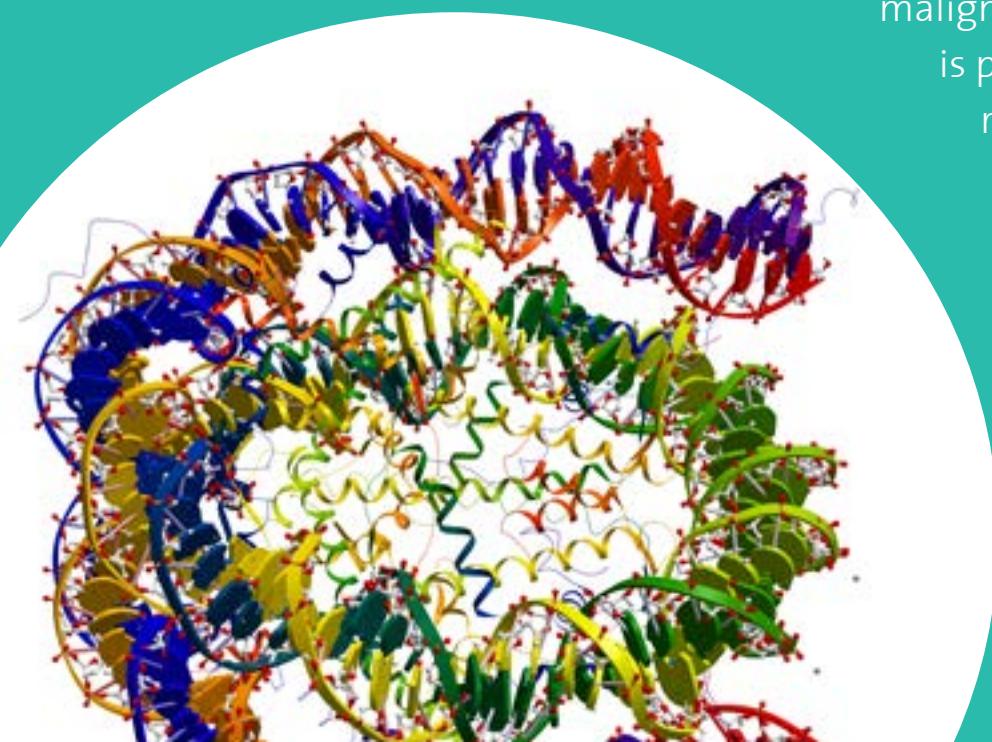
Members

Joan Pau Cebrià Costa

Ane Iturbide Martínez de Albéniz

Laura Pascual Reguant

The existence of mechanisms that modulate the output of genomes makes it clear that a true understanding of genome function requires integration of what we have learned about genome sequence with what we are still discovering about how genomes are modified and importantly how they are organized *in vivo* in the nucleus. What is happening in terms of chromatin dynamics and 3D chromatin architecture in cancer cells or rather, in the acquisition of malignant traits (Cancer and EMT) is poorly understood. Our main research objective is focused on the characterization of chromatin dynamics in cancer and in EMT.



Main Publications 2014

- Cebrià JP, Millanes-Romero A, García de Herreros A, Peiró S. The Epithelial-to-Mesenchymal Transition (EMT), a Particular Case. *Mol Cell Oncol* 2014;1(2):e960770.

- Finding the “readers” of oxidized histone H3 and new histone oxidases
 - > Fundació La Marató de TV3. 20132410
 - > Principal researcher: Peiró Sales, Sandra
- Chomatin Dynamics in EMT
 - > Fundación de Investigación Oncológica Fero
 - > Principal researcher: Peiró Sales, Sandra

Ongoing Research Projects 2014

- Identificación de inhibidores de LOXL2 mediante re-determinación de fármacos ya existentes (“Drug-repurposing”). Possible utilización terapéutica en tumores
 - > Associació Espanyola Contra el Càncer de Catalunya
 - > Principal researcher: Peiró Sales, Sandra
- Regulación de la expresión génica en el contexto de la cromatina. Inhibidores de modificadores de histonas como potenciales dianas terapéuticas
 - > Fondo de Investigación Sanitaria. ISCIII (PI12/01250)
 - > Principal researcher: Peiró Sales, Sandra
- Heterochromatin reorganization during the EMT process is controlled by Snail1 transcription factor
 - > Association for International Cancer Research (AICR) (13-0094)
 - > Principal researcher: Peiró Sales, Sandra

Colorectal Cancer

RESEARCH GROUP

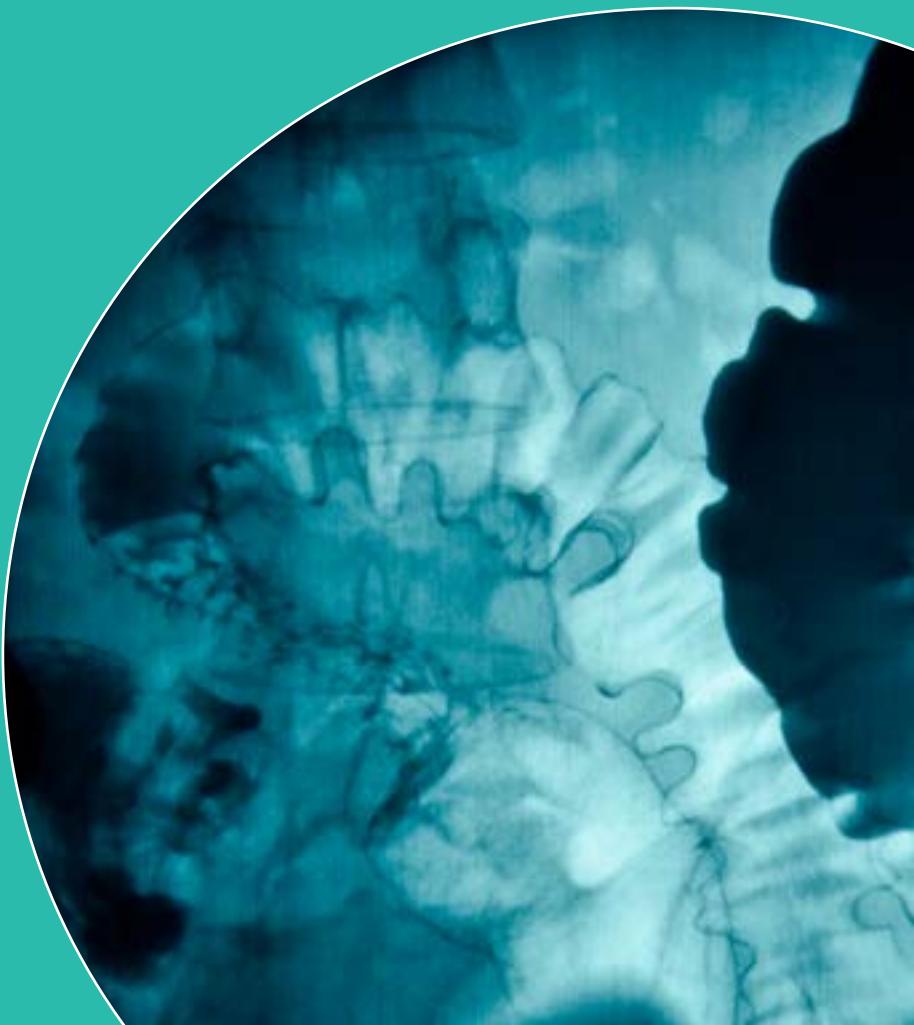


Coordinator

Miguel Pera Román

Members

Sandra Alonso Gonçálvez
Marta Cáceres Díez
Luis Grande Posa
Xavier Mayol Girbau
Marta Pascual Damieta
Xavier Rogés Robledo
José Antonio Pereira Rodríguez





Our group has the experience of several years in a stable line of translational research on such a significant clinical problem as tumor recurrence after surgery for colorectal cancer or liver metastases with curative intent. We have designed several *in vitro* assays, experimental tumor models as well as clinical studies to investigate the influence of surgery on the oncological outcome after surgical excision of colon cancer. Surgery induces an inflammatory response that in some patients may be associated to a worse prognosis. Our research has focused on

identifying those factors that may enhance the inflammatory response such as the surgical approach, ischemia-reperfusion injury or postoperative intraabdominal infection. We have shown that amplification of the inflammatory response may favor tumor recurrence by increasing angiogenesis and/or inducing an invasive phenotype of residual tumor cells.

During 2014 we have also initiated a collaboration with the Integrative Biochemistry Research Group (University of Barcelona) to identify metabolic profiles in postoperative plasma samples of patients operated from colorectal cancer to identify new prognostic biomarkers.

Main Publications 2014

- Cáceres M, Pascual M, Alonso S, Montagut C, Gallén M, Courtier R, Gil MJ, Grande L, Andreu M, Pera M. Tratamiento del cáncer colorrectal con metástasis irresecables en curso de quimioterapia sin resección del tumor primario: análisis de las complicaciones relacionadas con el tumor. *Cir Esp* 2014;92(1):30-38. IF 0.89. Q3.
- Salvans S, Mayol X, Alonso S, Messeguer R, Pascual M, Mojáil S, Grande L, Pera M. Postoperative peritoneal infection enhances migration and invasion capacities of tumor cells in vitro: an insight into the association between anastomotic leak and recurrence after surgery for colorectal cancer. *Ann Surg* 2014;260(5):939-944. IF 7.188. Q1.

Ongoing Research Projects 2014

- Efecto de la isquemia reperfusión sobre el crecimiento de las metástasis hepáticas de origen colorrectal en un modelo murino. Estudio de sus vías de producción y formas de modulación
 - > Fondo de Investigación Sanitaria. ISCIII (PI10/00595)
 - > Principal researcher: Grande Posa, Luis

- Infección peritoneal y recurrencia del cáncer colorrectal: estudio de la inflamación, angiogénesis y otros mecanismos implicados en el crecimiento tumoral tras cirugía con intención curativa
 - > Fondo de Investigación Sanitaria. ISCIII (PI11/01093)
 - > Principal researcher: Pera Román, Miguel
- Infección peritoneal postoperatoria y recurrencia del cáncer colorrectal. Estudio de los cambios en el metabolismo energético de las células tumorales como mecanismo responsable de esta asociación
 - > Fundación Mutua Madrileña (AP150582014)
 - > Principal researcher: Pascual Damieta, Marta

Participation in Research Networks

- Red de Innovación en Tecnologías Médicas y Sanitarias (ITEMAS)
 - > Fondo de Investigación Sanitaria. ISCIII (PT13/0006/0027)
 - > Principal researcher: Grande Posa, Luis

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Càncer Colorectal. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 431)
 - > Principal researcher: Pera Román, Miguel

Epithelial-Mesenchymal Transition in Tumor Development

RESEARCH GROUP

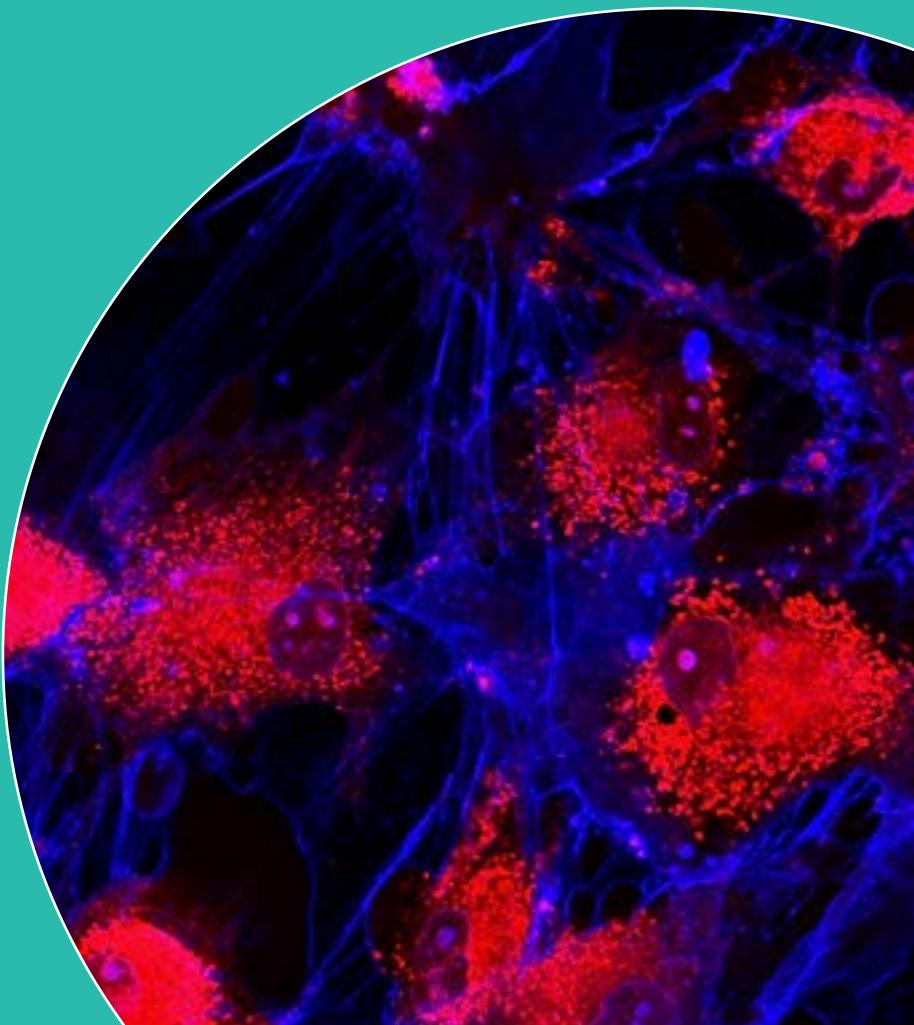


Coordinator

Antonio García de Herreros Madueño

Members

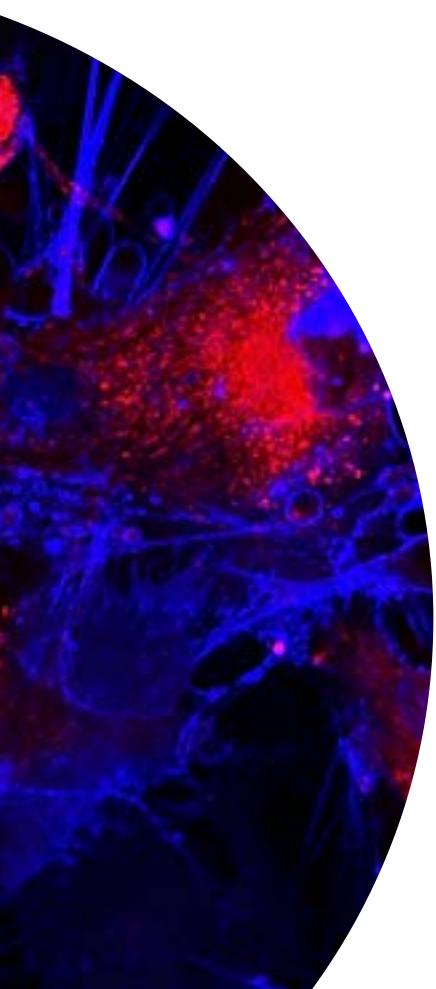
Lorena Alba Castellón
Josep Baulida Estadella
Sílvia Canudas Puig
Clara Francí Carrete
Víctor Manuel Díaz Cortés
Álex Frías Hernández
Núria González Busqué
Jordina Loubat Casanova
Rocco Mazzolini
Raúl Peña Arranz
Jessica Querol Paños
Jelena Stanisavljevic



The group is geared towards the study of the mechanisms controlling the acquisition of invasiveness by epithelial tumors as the first step in tumor metastasis. More specifically, we have studied the role of E-cadherin and E-cadherin-associated proteins in this process.

We focus on the relevance of epithelial-to-mesenchymal transition (EMT) in tumor invasion as well as the co-adjuvant role of cancer-associated fibroblasts. The group is especially interested in the role of Snail1 transcriptional factor, a E-cadherin transcriptional repressor required for EMT and also for fibroblasts activation.

We also studied the molecular pathways controlled by E-cadherin and Snail1 involved in Epithelial-to-Mesenchymal Transition and fibroblast activation.



Main Publications 2014

- Alba-Castellón L, Batlle R, Francí C, Fernández-Aceñero MJ, Mazzolini R, Peña R, Loubat J, Alameda F, Rodríguez R, Curto J, Albanell J, Muñoz A, Bonilla F, Casal JI, Rojo F, García de Herreros A. Snail1 expression is required for sarcomagenesis. *Neoplasia* 2014;16(5):413-421. IF 5.398. Q1.
- Cañas I, Rojo F, Taus A, Arpí O, Arumí M, Pijuan L, Menéndez S, Zazo S, Domíne M, Salido M, Mojá S, García de Herreros A, Rovira A, Albanell J, Arriola E. Targeting epithelial to mesenchymal transition with MET inhibitors reverts chemoresistance in SCLC. *Clin Cancer Res* 2014;20(4):938-950. IF 8.193. Q1.
- Cebrià JP, Millanes-Romero A, García de Herreros A, Peiró S. The Epithelial-to-Mesenchymal Transition (EMT), a Particular Case. *Mol Cell Oncol* 2014;1(2):e960770.
- Díaz VM, Viñas-Castells R, García de Herreros A. Regulation of the protein stability of EMT transcription factors. *Cell Adh Migr* 2014;8(4):418-428. IF 3.395. Q2.
- García de Herreros A. Epithelial to Mesenchymal Transition in tumor cells as consequence of phenotypic instability. *Front Cell Dev Biol* 2014;2:71.
- Herrera A, Herrera M, Alba-Castellón L, Silva J, García V, Loubat J, Álvarez-Cienfuegos A, García JM, Rodríguez R, Gil B, Cidores MJ, Larriba MJ, Casal JI, García de Herreros A, Bonilla F, Peña C. Pro-tumorigenic effects of snail-expression in fibroblasts on colon cancer cells. *Int J Cancer* 2014;134(12):2984-2990. IF 5.007. Q1.
- Herrera A, Herrera M, García de Herreros, Bonilla F, Peña C. Snail1-expressing fibroblasts as a source of paracrine signals in colon cancer tumors. *Cancer Cell & Microenviron* 2014;1:e417.
- Vinyoles M, del Valle-Pérez B, Curto J, Viñas-Castells R, Alba-Castellón L, García de Herreros A, Duñach M. Multivesicular GSK3 Sequestration upon Wnt signaling is controlled by p120-catenin/cadherin interaction with LRP5/6. *Mol Cell* 2014;53(3):444-457. IF 14.464. Q1.
- Viñas-Castells R, Frías A, Robles-Lanuza E, Zhang K, Longmore GD, García de Herreros A, Díaz VM. Nuclear ubiquitination by FBXL5 modulates Snail1 DNA binding and stability. *Nucleic Acids Res* 2014;42(2):1079-1094. IF 8.808. Q1.

Ongoing Research Projects 2014

- Papel de Snail1 en la recidiva del cáncer de mama

- > Fundación Sandra Ibarra de solidaridad frente al cáncer
 - > Principal researcher: García de Herreros Madueño, Antonio
- Análisis del papel del estroma en el crecimiento e invasión de carcinomas de colon: identificación, caracterización y potencial clínico de marcadores de la activación estromal
 - > Asociación Española Contra el Cáncer
 - > Principal researcher: García de Herreros Madueño, Antonio
- Estudios in vivo e in vitro sobre el papel de Snail1 en EMT, la activación de fibroblastos y el desarrollo tumoral
 - > Ministerio de Ciencia e Innovación (SAF2010-16089)
 - > Principal researcher: García de Herreros Madueño, Antonio
- Analysis of the Wnt-dependent control of mesenchymal stem cells differentiation
 - > Fundació La Marató de TV3 (120131)
 - > Principal researcher: García de Herreros Madueño, Antonio
- Mecanismos moleculares que regulan las propiedades de la matriz extracelular y su repercusión sobre la *stemness* y la malignidad tumoral
 - > Fondo de Investigación Sanitaria. ISCIII (PI12/00257)
 - > Principal researcher: Baulida Estadella, Josep
- Transición epitelio-mesénquima en el desarrollo y progresión del cáncer de mama.
 - > Fundación Eugenio Rodríguez Pascual
 - > Principal researcher: García de Herreros Madueño, Antonio
- Transición epitelio-mesénquima y desarrollo tumoral: análisis de la función de Snail1 en el estroma tumoral y en la invasión de células epiteliales
 - > Ministerio de Economía y Competitividad (SAF2013-48849-C2-1-R)
 - > Principal researcher: García de Herreros Madueño, Antonio

Participation in Research Networks

- Red Temática de Investigación Cooperativa en Cáncer
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS (RD12/0036/0005)
 - > Principal researcher: García de Herreros Madueño, Antonio

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Regulació dels contactes intercel·lulars a l'epiteli intestinal. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 32)
 - > Principal researcher: García de Herreros Madueño, Antonio

Gastroesophageal Carcinogenesis

RESEARCH GROUP



Coordinator

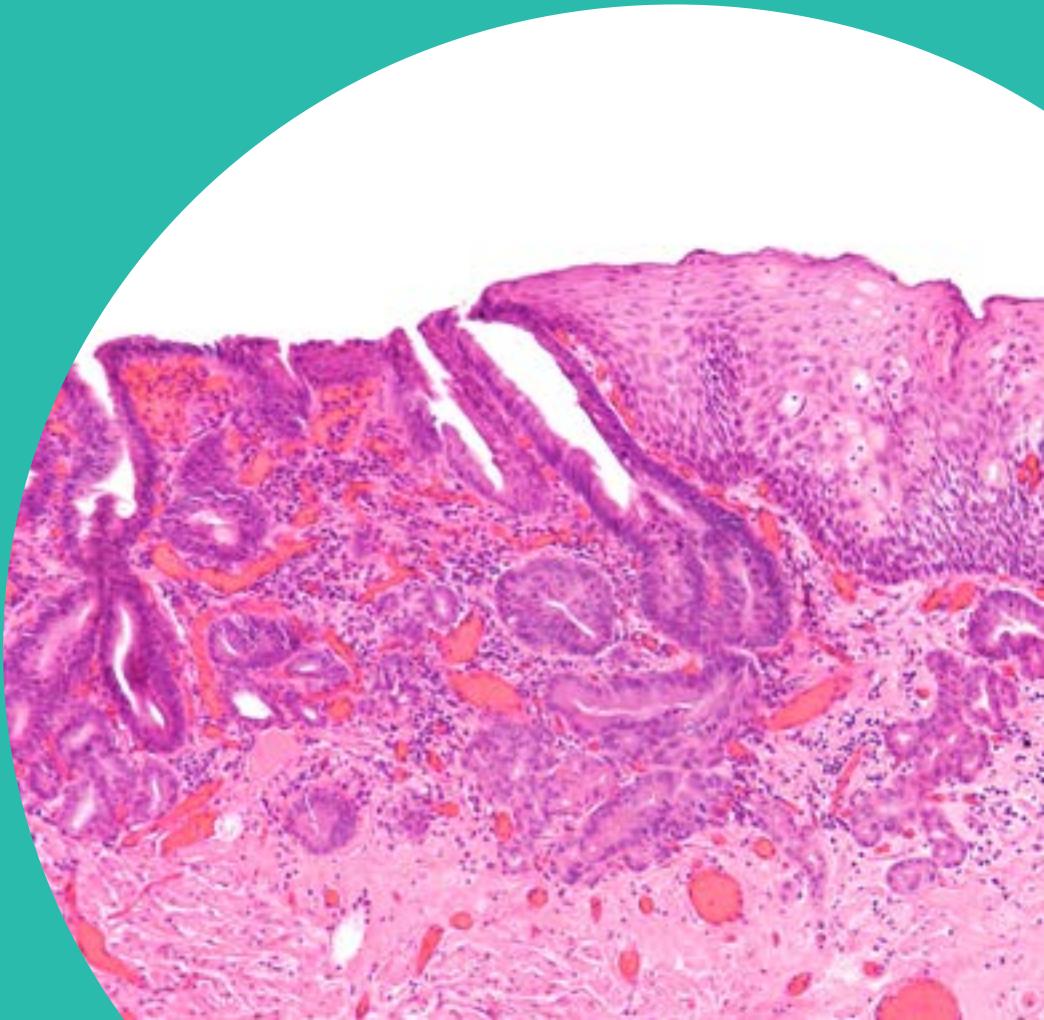
Carme de Bolós Pi

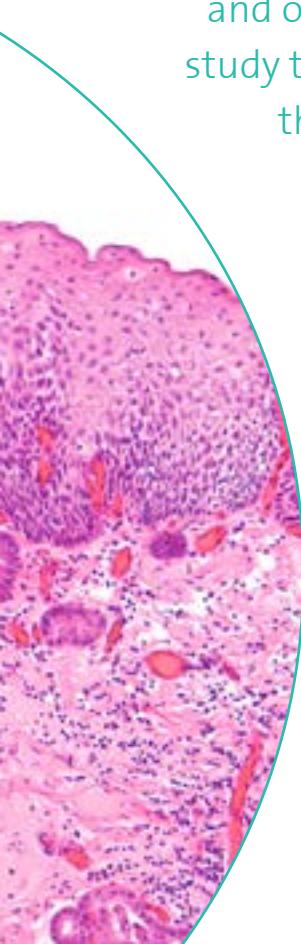
Members

Marta Garrido Saldaña

Mar Iglesias Coma

Manuel Ramón Pera Román





The sequential process prior to the appearance of a gastric or esophageal adenocarcinoma is a sequential histologically well-defined process characterized by the appearance of an intestinal phenotype. In the first stages of gastro-esophageal carcinogenesis the expression of intestinal markers, such as intestinal transcription factors (CDX2), mucin genes (MUC2 and MUC4), intestinal enzymes and others, can be detected. We study the molecular mechanisms that may be initiating these processes, through the regulation of transcription factors inducing the acquisition of the intestinal phenotype. In the esophagus, the development

of columnar metaplasia (Barrett's esophagus) is a response to a chronic gastroesophageal reflux injury and is a major risk factor for esophageal adenocarcinoma. Patients undergoing esophagectomy with a gastric conduit reconstruction develop columnar metaplasia in the remnant esophagus against a background of significant reflux, providing a useful model to study the early molecular events in the development of Barrett's esophagus. miRNAs expression profiles may identify a characteristic signature that could distinguish between normal squamous epithelium, esophagitis, cardiac-type epithelium, and intestinal metaplasia. A group of miRNAs may selectively target specific transcriptional factors (CDX2) involved in the development of Barrett's esophagus.

Main Publications 2014

- Cobler L, Pera M, Garrido M, Iglesias M, de Bolós C. CDX2 can be regulated through the signalling pathways activated by IL-6 in gastric cells. *Biochim Biophys Acta* 2014;1839(9):785-792. IF 5.44. Q1.
- Gonzalo V, Lozano JJ, Alonso-Espinaco V, Moreira L, Muñoz J, Pellisé M, Castellví-Bel S, Bessa X, Andreu M, Xicola RM, Llor X, Ruiz-Ponte C, Carracedo A, Jover R, Castells A, Balaguer F, for the Gastrointestinal Oncology Group of the Spanish Gastroenterological Association (... Abulí A, Iglesias M, Seoane A, Bory F, Navarro G, Bellosillo B, Dedeu JM, Álvarez C, González-Suárez B...). Multiple sporadic colorectal cancers display a unique methylation phenotype. *PLoS ONE* 2014;9(3): e91033. IF 3.534. Q1.
- Lanzarini E, Ramón JM, Grande L, Pera M. Delayed cervical esophagogastrectomy: A surgical alternative for patients with ischemia of the gastric conduit at time of esophagectomy. *Cir Esp* 2014;92(6):429-431. IF 0.89. Q3.
- Lorente L, Ramón JM, Vidal P, Goday A, Parri A, Lanzarini E, Pera M, Grande L. Obesity surgery mortality risk score for the prediction of complications after laparoscopic bariatric surgery. *Cir Esp* 2014;92(5):316-323. IF 0.89. Q3.
- Martínez-Bosch N, Fernández-Barrena MG, Moreno M, Ortiz-Zapater E, Munné J, Iglesias M, André S, Gabius HJ, Hwang RF, Poirier F, Navas C, Guerra C, Fernández-Zapico ME, Navarro P. Galectin-1 drives pancreatic carcinogenesis through stroma remodeling and Hedgehog signaling activation. *Cancer Res* 2014;74(13):3512-3524. IF 9.284. Q1.
- Martínez-Bosch N, Iglesias M, Munné J, Martínez-Cáceres C, Moreno M, Guerra C, Yélamos J, Navarro P. Parp-1 genetic ablation in Ela-myc mice unveils novel roles for Parp-1 in pancreatic cancer. *J Pathol* 2014;234(2):214-227. IF 7.33. Q1.
- Vidal P, Ramón JM, Bustos M, Domínguez-Vega G, Goday A, Pera M, Grande L. Residual gastric volume estimated with a new radiological volumetric model: relationship with weight loss after laparoscopic sleeve gastrectomy. *Obes Surg* 2014;24(3):359-363. IF 3.739. Q1.
- Vidal P, Ramón JM, Goday A, Parri A, Crous X, Trillo L, Pera M, Grande L. Lack of adherence to follow-up visits after bariatric surgery: reasons and outcome. *Obes Surg* 2014;24(2):179-183. IF 3.739. Q1.

Ongoing Research Projects 2014

- Regulación de la expresión de factores de transcripción gástricos (SOX2) e intestinales (CDX1 y CDX2) en la carcinogénesis gástrica
 - > Fondo de Investigación Sanitaria. ISCIII (PI10/01490)
 - > Principal researcher: de Bolós Pi, Carme
- Regulación de CDX2 por miRNAs durante el proceso de intestinalización de la metaplasia cardial en un modelo humano de esófago de Barrett
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/00989)
 - > Principal researcher: Pera Román, Manuel Ramón

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya. Grup de Recerca en Carcinogènesis Gastroesofàgica. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 602)
 - > Principal researcher: de Bolós Pi, Carme

Genitourinary Cancer

RESEARCH GROUP

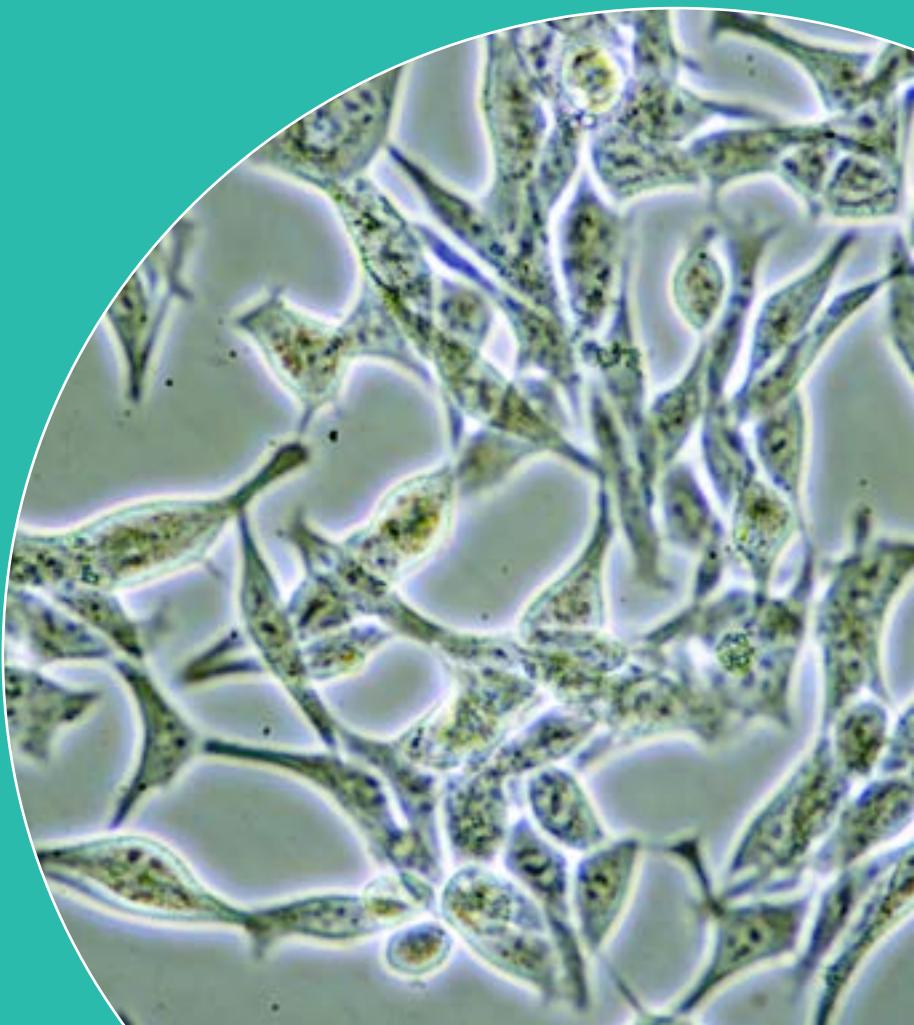


Coordinator

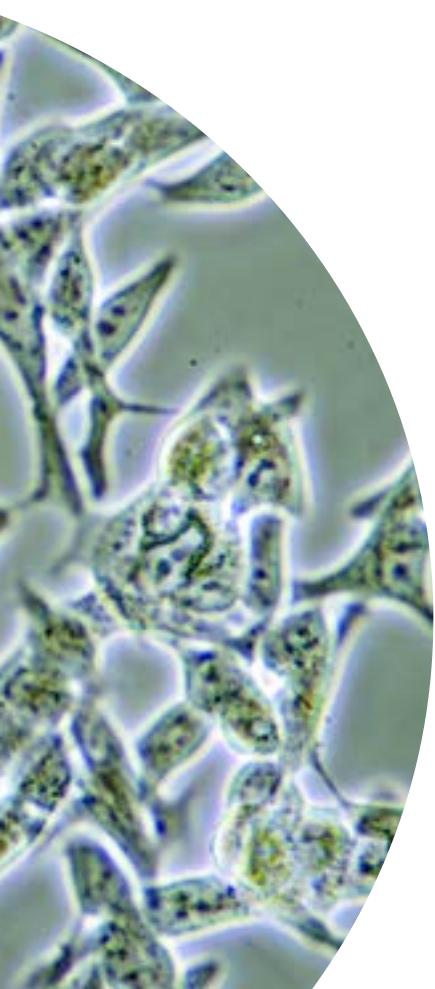
Josep Lloreta Trull

Members

Manuel Ignacio Algara López
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Albert Francés Comalat
Lluís Fumadó Ciutat
Marta Guix Arnau
Núria Juanpere Rodero
José Antonio Lorente Garin
Marta Lorenzo Pérez
Gloria Nohales Taurines



Prostate cancer is the most common male malignancy but its progression rate is only 30%. More refined detection methods are increasing the number of patients undergoing radical surgical treatment for tumors that perhaps would not progress. Our objectives are to identify genetic signatures that could be involved in the transition from a hypothetical latent to a clinically significant phase, to better understand the natural history of prostatic carcinoma and to design adequate treatment strategies for each patient.



Main Publications 2014

- Agarwal N, Bellmunt J, Maughan BL, Boucher KM, Choueiri TK, Qu AQ, Vogelzang NJ, Fougeray R, Niegisch G, Albers P, Wong YN, Ko YJ, Sridhar SS, Tantravahi SK, Galsky MD, Petrylak DP, Vaishampayan UN, Mehta AN, Beer TM, Sternberg CN, Rosenberg JE, Sonpavde G. Six-Month Progression-Free Survival as the Primary Endpoint to Evaluate the Activity of New Agents as Second-line Therapy for Advanced Urothelial Carcinoma. *Clin Genitourin Cancer* 2014;12(2):130-137.
- Allory Y, Beukers W, Sagrera A, Flández M, Marqués M, Márquez M, van der Keur KA, Dyrskjot L, Lurkin I, Vermeij M, Carrato A, Lloreta J, Lorente JA, Carrillo-de Santa Pau E, Masius RG, Kogevinas M, Steyerberg EW, van Tilborg AA, Abas C, Orntoft TF, Zuiverloon TC, Malats N, Zwarthoff EC, Real FX. Telomerase reverse transcriptase promoter mutations in bladder cancer: high frequency across stages, detection in urine, and lack of association with outcome. *Eur Urol* 2014;65(2):360-366. IF 12.48. Q1.
- Bellmunt J, Selvarajah S, Rodig S, Salido M, de Muga S, Costa I, Bellosillo B, Werner L, Mullane S, Fay AP, O'Brien R, Barretina J, Minoche AE, Signoretti S, Montagut C, Himmelbauer H, Berman DM, Kantoff P, Choueiri TK, Rosenberg JE. Identification of ALK gene alterations in urothelial carcinoma. *PLoS ONE* 2014;9(8):e103325. IF 3.534. Q1.
- Bellmunt J, Orsola A, Leow JJ, Wiegel T, de Santis M, Horwich A; ESMO Guidelines Working Group. Bladder cancer: ESMO Practice Guidelines for diagnosis, treatment and follow-up. *Ann Oncol* 2014;25(Suppl 3):iii40-iii48. IF 6.578. Q1.
- Figueiroa JD, Ye Y, Siddiq A, Garcia-Closas M, Chatterjee N, Prokunina-Olsson L, Cortessis VK, Kooperberg C, Cussenot O, Benhamou S, Prescott J, Porru S, Dinney CP, Malats N, Baris D, Purdue M, Jacobs EJ, Albanes D, Wang Z, Deng X, Chung CC, Tang W, Bas Bueno-de-Mesquita H, Trichopoulos D, Ljungberg B, Clavel-Chapelon F, Weiderpass E, Krogh V, Dorronsoro M, Travis R, Tjønneland A, Brenan P, Chang-Claude J, Riboli E, Conti D, Gago-Domínguez M, Stern MC, Pike MC, van den Berg D, Yuan JM, Hohensee C, Rodabough R, Cancel-Tassin G, Roupret M, Comperat E, Chen C, de Vivo I, Giovannucci E, Hunter DJ, Kraft P, Lindstrom S, Carta A, Pavanello S, Arici

- C, Mastrangelo G, Kamat AM, Lerner SP, Barton Grossman H, Lin J, Gu J, Pu X, Hutchinson A, Burdette L, Wheeler W, Kogevinas M, Tardón A, Serra C, Carrato A, García-Closas R, Lloreta J, Schwenn M, Karagas MR, Johnson A, Schned A, Armenti KR, Hosain GM, Andriole G Jr, Grubb R 3rd, Black A, Ryan Diver W, Gapstur SM, Weinstein SJ, Virtamo J, Haiman CA, Landi MT, Caporaso N, Fraumeni JF Jr, Vineis P, Wu X, Silverman DT, Chanock S, Rothman N. Genome-wide association study identifies multiple loci associated with bladder cancer risk. *Hum Mol Genet* 2014;23(5):1387-1398. IF 6.677. Q1.
- Foro P, Algara M, Lozano J, Rodríguez N, Sanz X, Torres E, Carles J, Reig A, Membrive I, Quera J, Fernández-Velilla E, Pera O, Lacruz M, Bellosillo B. Relationship between radiation-induced apoptosis of T lymphocytes and chronic toxicity in patients with prostate cancer treated by radiation therapy: a prospective study. *Int J Radiat Oncol* 2014;88(5):1057-1063. IF 4.176. Q1.
 - Fu YP, Kohaar I, Moore LE, Lenz P, Figueroa JD, Tang W, Porter-Gill P, Chatterjee N, Scott-Johnson A, Garcia-Closas M, Muchmore B, Baris D, Paquin A, Ylaya

K, Schwenn M, Apolo AB, Karagas MR, Tarway M, Johnson A, Mumy A, Schned A, Guedez L, Jones MA, Kida M, Hosain GM, Malats N, Kogevinas M, Tardon A, Serra C, Carrato A, Garcia-Closas R, Lloreta J, Wu X, Purdue M, Andriole GL Jr, Grubb RL 3rd, Black A, Landi MT, Caporaso NE, Vineis P, Siddiq A, Bueno-de-Mesquita HB, Trichopoulos D, Ljungberg B, Severi G, Weiderpass E, Krogh V, Dorronsoro M, Travis RC, Tjønneland A, Brennan P, Chang-Claude J, Riboli E, Prescott J, Chen C, De Vivo I, Govannucci E, Hunter D, Kraft P, Lindstrom S, Gapstur SM, Jacobs EJ, Diver WR, Albanes D, Weinstein SJ, Virtamo J, Kooperberg C, Hohensee C, Rodabough RJ, Cortessis VK, Conti DV, Gago-Domínguez M, Stern MC, Pike MC, van den Berg D, Yuan JM, Haiman CA, Cussenot O, Cancel-Tassin G, Roupert M, Comperat E, Porru S, Carta A, Pavanello S, Arici C, Mastrangelo G, Grossman HB, Wang Z, Deng X, Chung CC, Hutchinson A, Burdette L, Wheeler W, Fraumeni J Jr, Chanock SJ, Hewitt SM, Silverman DT, Rothman N, Prokunina-Olsson L. The 19q12 bladder cancer GWAS signal: association with cyclin E function and aggressive disease. *Cancer Res* 2014;74(20):5808-18. IF 9.284. Q1.

- Guancial EA, Werner L, Bellmunt J, Bamias A, Choueiri TK, Ross R, Schutz FA, Park RS, O'Brien RJ, Hirsch MS, Barletta JA, Berman DM, Lis R, Loda M, Stack EC, Garraway LA, Riester M, Michor F, Kantoff PW, Rosenberg JE. FGFR3 expression in primary and metastatic urothelial carcinoma of the bladder. *Cancer Med* 2014;3(4):835-844.
- Pineda S, Milne RL, Calle ML, Rothman N, López de Maturana E, Herranz J, Kogevinas M, Chanock SJ, Tardón A, Márquez M, Guey LT, García-Closas M, Lloreta J, Baum E, González-Neira A, Carrato A, Navarro A, Silverman DT, Real FX, Malats N. Genetic variation in the TP53 pathway and bladder cancer risk. a comprehensive analysis. *PLoS ONE* 2014;9(5):e89952. IF 3.534. Q1.
- Riester M, Werner L, Bellmunt J, Selvarajah S, Guancial EA, Weir BA, Stack EC, Park RS, O'Brien R, Schutz FA, Choueiri TK, Signoretti S, Lloreta J, Marchionni L, Gallardo E, Rojo F, Garcia DI, Chekaluk Y, Kwiatkowski DJ, Bochner BH, Hahn WC, Ligon AH, Barletta JA, Loda M, Berman DM, Kantoff PW, Michor F, Rosenberg JE. Integrative analysis of 1q23.3 copy-number gain in metastatic urothelial carcinoma. *Clin Cancer Res* 2014;20(7):1873-1883. IF 8.193. Q1.
- Tajuddin SM, Amaral AF, Fernández AF, Chanock S, Silverman DT, Tardón A, Carrato A, García-Closas M, Jackson BP, Toraño EG, Márquez M, Urdinguio RG, García-Closas R, Rothman N, Kogevinas M, Real FX, Fraga MF, Malats N; Spanish Bladder Cancer/EPICURO Study investigators. LINE-1 methylation in leukocyte DNA, interaction with phosphatidylethanolamine N-methyltransferase variants and bladder cancer risk. *Br J Cancer* 2014;110(8):2123-2130. IF 4.817. Q1.
- Wang Z, Zhu B, Zhang M, Parikh H, Jia J, Chung CC, Sampson JN, Hoskins JW, Hutchinson A, Burdette L, Ibrahim A, Hautman C, Raj PS, Abnet CC, Adjei AA, Ahlbom A, Albanes D, Allen NE, Ambrosone CB, Aldrich M, Amiano P, Amos C, Andersson U, Andriole G Jr, Andrulis IL, Arici C, Arslan AA, Austin MA, Baris D, Barkauskas DA, Bassig BA, Beane Freeman LE, Berg CD, Berndt SI, Bertazzi PA, Biritwum RB, Black A, Blot W, Boeing H, Boffetta P, Bolton K, Boutron-Ruault MC, Bracci PM, Brennan P, Brinton LA, Brotzman M, Bueno-de-Mesquita HB, Buring JE, Butler MA, Cai Q, Cancel-Tassin G, Canzian F, Cao G, Caporaso NE, Carrato A, Carreon T, Carta A, Chang GC, Chang IS, Chang-Claude J,

Che X, Chen CJ, Chen CY, Chen CH, Chen C, Chen KY, Chen YM, Chokkalingam AP, Chu LW, Clavel-Chapelon F, Colditz GA, Colt JS, Conti D, Cook MB, Cortessis VK, Crawford ED, Cussenot O, Davis FG, De Vivo I, Deng X, Ding T, Dinney CP, Di Stefano AL, Diver WR, Duell EJ, Elena JW, Fan JH, Feigelson HS, Feychting M, Figueiredo JD, Flanagan AM, Fraumeni JF Jr, Freedman ND, Fridley BL, Fuchs CS, Gago-Domínguez M, Gallinger S, Gao YT, Gapstur SM, Garcia-Closas M, Garcia-Closas R, Gastier-Foster JM, Gaziano JM, Gerhard DS, Giffen CA, Giles GG, Gillanders EM, Giovannucci EL, Goggins M, Gokgoz N, Goldstein AM, Gonzalez C, Gorlick R, Greene MH, Gross M, Grossman HB, Grubb R 3rd, Gu J, Guan P, Haiman CA, Hallmans G, Hankinson SE, Harris CC, Hartge P, Hattinger C, Hayes RB, He Q, Helman L, Henderson BE, Henriksson R, Hoffman-Bolton J, Hohensee C, Holly EA, Hong YC, Hoover RN, Hosgood HD 3rd, Hsiao CF, Hsing AW, Hsiung CA, Hu N, Hu W, Hu Z, Huang MS, Hunter DJ, Inskip PD, Ito H, Jacobs EJ, Jacobs KB, Jenab M, Ji BT, Johansen C, Johansson M, Johnson A, Kaaks R, Kamat AM, Kamineni A, Karagas M, Khanna C, Khaw KT, Kim C, Kim IS, Kim JH, Kim YH, Kim YC, Kim YT, Kang CH, Jung YJ, Kitahara CM, Klein

AP, Klein R, Kogevinas M, Koh WP, Kohno T, Kolonel LN, Kooperberg C, Kratz CP, Krogh V, Kunitoh H, Kurtz RC, Kurucu N, Lan Q, Lathrop M, Lau CC, Lecanda F, Lee KM, Lee MP, Le Marchand L, Lerner SP, Li D, Liao LM, Lim WY, Lin D, Lin J, Lindstrom S, Linet MS, Lissowska J, Liu J, Ljungberg B, Lloreta J, Lu D, Ma J, Malats N, Mannisto S, Marina N, Mastrangelo G, Matsuo K, McGlynn KA, McKean-Cowdin R, McNeill LH, McWilliams RR, Melin BS, Meltzer PS, Mensah JE, Miao X, Michaud DS, Mondul AM, Moore LE, Muir K, Niwa S, Olson SH, Orr N, Panico S, Park JY, Patel AV, Patino-Garcia A, Pavanello S, Peeters PH, Peplonska B, Peters U, Petersen GM, Picci P, Pike MC, Porru S, Prescott J, Pu X, Purdue MP, Qiao YL, Rajaraman P, Riboli E, Risch HA, Rodabough RJ, Rothman N, Ruder AM, Ryu JS, Sanson M, Schned A, Schumacher FR, Schwartz AG, Schwartz KL, Schwenn M, Scotlandi K, Seow A, Serra C, Serra M, Sesso HD, Severi G, Shen H, Shen M, Shete S, Shiraishi K, Shu XO, Siddiq A, Sierrasesumaga L, Sierrri S, Loon Sihoe AD, Silverman DT, Simon M, Southey MC, Spector L, Spitz M, Stampfer M, Stattin P, Stern MC, Stevens VL, Stolzenberg-Solomon RZ, Stram DO, Strom SS, Su WC, Sund M, Sung SW, Swerdlow A, Tan W, Tanaka H,

Tang W, Tang ZZ, Tardon A, Tay E, Taylor PR, Tettey Y, Thomas DM, Tirabosco R, Tjønneland A, Tobias GS, Toro JR, Travis RC, Trichopoulos D, Troisi R, Truelove A, Tsai YH, Tucker MA, Tumino R, van den Berg D, van den Eeden SK, Vermeulen R, Vineis P, Visvanathan K, Vogel U, Wang C, Wang C, Wang J, Wang SS, Weiderpass E, Weinstein SJ, Wentzensen N, Wheeler W, White E, Wiencke JK, Wolk A, Wolpin BM, Wong MP, Wrensch M, Wu C, Wu T, Wu X, Wu YL, Wunder JS, Xiang YB, Xu J, Yang HP, Yang PC, Yatabe Y, Ye Y, Yeboah ED, Yin Z, Ying C, Yu CJ, Yu K, Yuan JM, Zanetti KA, Zeleniuch-Jacquotte A, Zheng W, Zhou B, Mirabello L, Savage SA, Kraft P, Chanock SJ, Yeager M, Landi MT, Shi J, Chatterjee N, Amundadottir LT. Imputation and subset-based association analysis across different cancer types identifies multiple independent risk loci in the TERT-CLPTM1L region on chromosome 5p15.33. *Hum Mol Genet* 2014;23(24):6616-33. IF 6.677. Q1.

Ongoing Research Projects 2014

- Validación de nuevas dianas con potencial interés diagnóstico, pronóstico y terapéutico en cáncer de próstata y estudio de sus mecanismos de acción

- > Fondo de Investigación Sanitaria. ISCIII (PI12/01426)
 - > Principal researcher: Lloreta Trull, Josep
- Ensayo fase I/II de escalada de dosis de radioterapia sobre regiones hipóxicas determinadas con f18-Fluoromisonidazol (FMISO)-PET-TC en cáncer de pulmón
 - > Fondo de Investigación Sanitaria. ISCIII (Plo80376)
 - > Principal researcher: Algara López, Manuel Ignacio

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Càncer Urològic. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 197)
 - > Principal researcher: Lloreta Trull, Josep

Clinical Trials Signed in 2014

- Phase II studies: 2 (2013/5402, 2013/5239)
- Phase III studies: 1 (2013/5229)
- Phase IV studies: 2 (2014/5724, 2013/5443)
- Observational studies: 2 (2012/4881, 2014/5668)



Localised Hyperthermia Therapies

RESEARCH GROUP



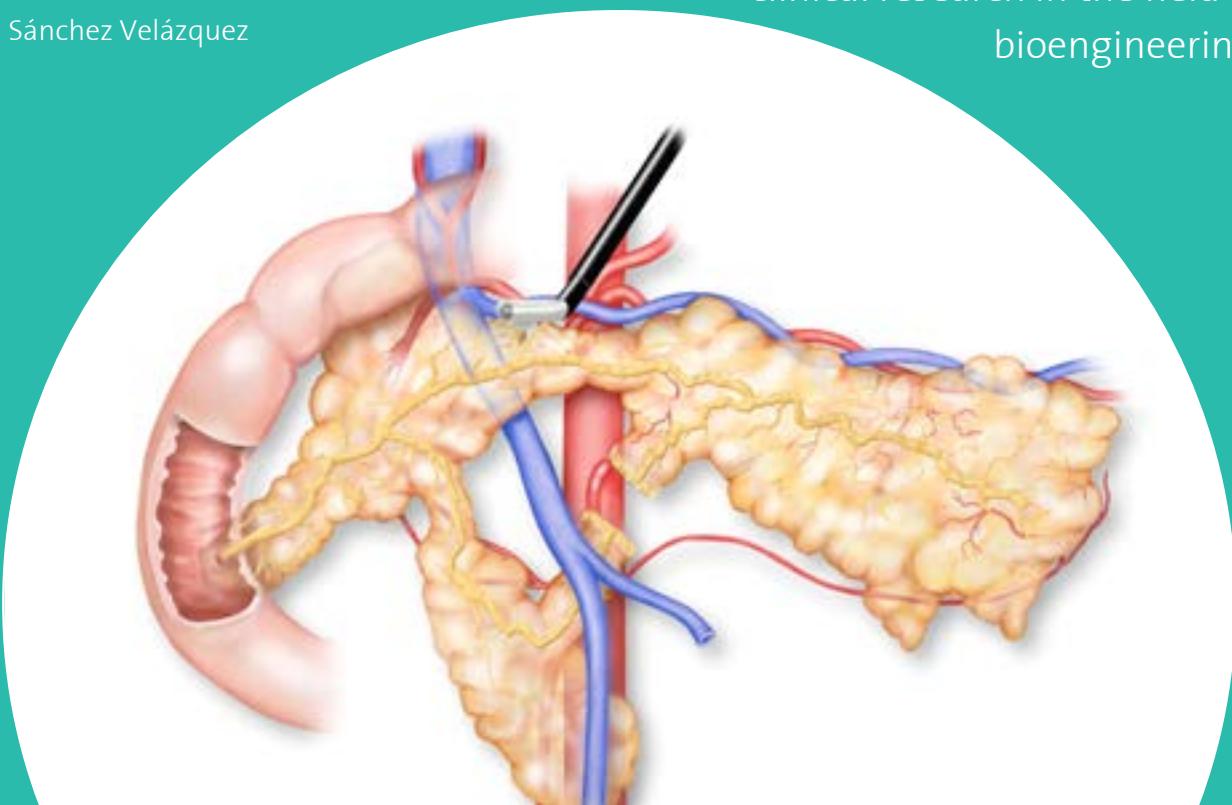
Coordinator

Fernando Burdío Pinilla

Members

M. Pilar Iskra Marco
Clara Pañella Vilamu
José Ignacio Poves Prim
Juan Sánchez Parrilla
Patricia Sánchez Velázquez

The group's primary objective is scientific output and technological innovation in the field of applying high frequency currents in the generation of heat in biological tissues, geared towards a minimally invasive local cell destruction in pathological tissues, most especially (but not exclusively) of human neoplasia. In recent years we have conducted applied research activities, technological development and clinical research in the field of bioengineering.



Main Publications 2014

- González-Suárez A, Trujillo M, Burdío F, Andaluz A, Berjano E. Could the heat sink effect of blood flow inside large vessels protect the vessel wall from thermal damage during RF-assisted surgical resection? *Medical Physics* 2014;41(8):083301. IF 3.012. Q1.
- Quesada R, Burdío F, Iglesias M, Dorcaratto D, Cáceres M, Andaluz A, Poves I, Castiella T, Sánchez P, Berjano E, Grande L. Radiofrequency pancreatic ablation and section of the main pancreatic duct does not lead to necrotizing pancreatitis. *Pancreas* 2014;43(6):931-937. IF 3.008. Q2.

Ongoing Research Projects 2014

- Tratamiento de tumores hepáticos primarios y secundarios con sistema de ablación por radiofrecuencia “COOL-WET”. Ensayo clínico fase I-II
 - > Fondo de Investigación Sanitaria. ISCIII (PI12/00799)
 - > Principal researcher: Burdío Pinilla, Fernando

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Teràpies d'Hipertèrmia Localitzada. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 1143)
 - > Principal researcher: Burdío Pinilla, Fernando

Other

- Applicator device for ablation by radiofrequency of biological tissues. Enrique Berjano Zanón (25%), Fernando Burdío Pinilla (25%), Antonio Güemes Sánchez (25%), Ana Navarro Gonzalo (25%). Universidad Politécnica de Valencia. Universidad de Zaragoza. European patent (priority date: 30/04/2007). Company that is exploiting it: Apeiron Medical S.L.

Molecular Cancer Therapeutics

RESEARCH GROUP



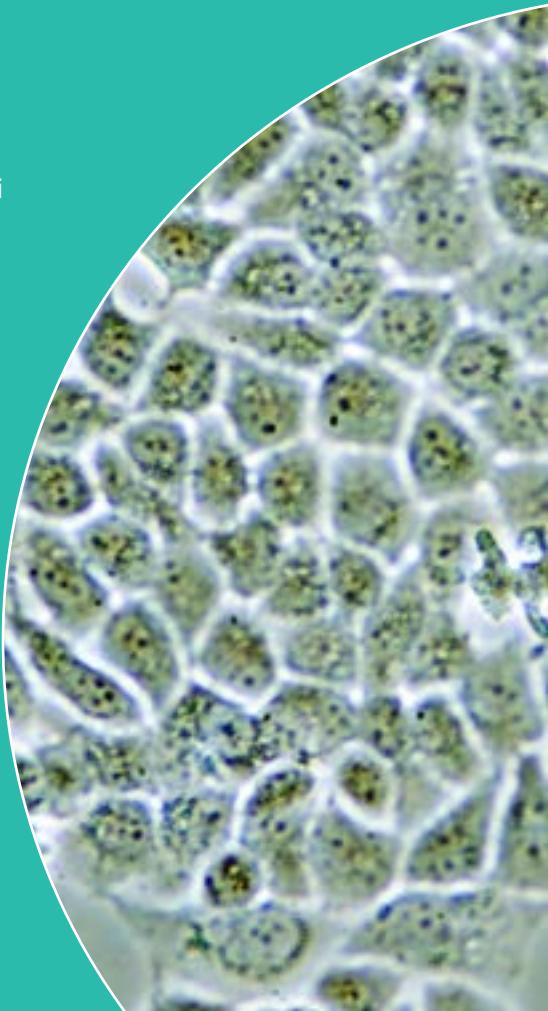
Coordinator

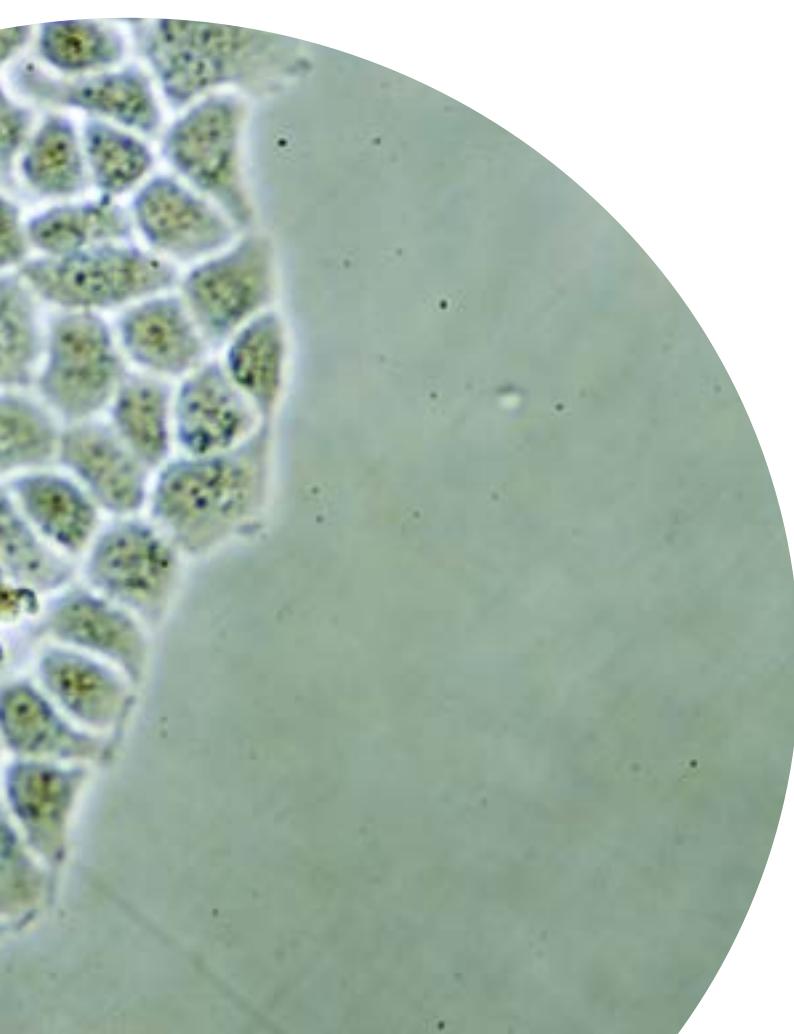
Joan Albanell Mestres

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Lorena Tomás Marín
Ignacio Tusquets Trias de Bes
Xavier Villanueva Castelltort





Our goal is improving the treatment of human cancer through preclinical research with novel anticancer agents/ combinations in cell culture and in *in vivo* models, and biomarker studies in preclinical and clinical settings. Our group develops new molecular cancer therapies and/or biomarkers. Nowadays research on de novo and acquired resistance to molecularly targeted anticancer therapies is the focus of our group towards individualized medicine. This research should ultimately serve as a basis for clinical trial design and patient selection. The group comprises oncologists, pathologists and biologists and is organized into three closely related and complementary sections: Preclinical Laboratory, Biomarker Laboratory and Clinical Research and Clinical Trials.

Main Publications 2014

- Alba E, Albanell J, de la Haba J, Barnadas A, Calvo L, Sánchez-Rovira P, Ramos M, Rojo F, Burgués O, Carrasco E, Caballero R, Porras I, Tibau A, Cámara MC, Lluch A. Trastuzumab or lapatinib with standard chemotherapy for HER2-positive breast cancer: results from the GEICAM/2006-14 trial. *Br J Cancer* 2014;110(5):1139-47. IF 4.817. Q1.
- Albanell J, Ciruelos EM, Lluch A, Muñoz M, Rodríguez CA. Trastuzumab in small tumours and in elderly women. *Cancer Treat Rev* 2014;40(1):41-7. IF 6.466. Q1.
- Bellmunt J, Suárez C, Gallardo E, Rodon J, Pons F, Bonfill T, Beltran M, Moya I, Galtes S, Albanell J, Carles J. Phase I study of sunitinib in combination with gemcitabine and capecitabine for first-line treatment of metastatic or unresectable renal cell carcinoma. *Oncologist* 2014;19(9):917-8. IF 4.54. Q1.
- Cañadas I, Rojo F, Taus A, Arpí O, Arumí-Úria M, Pijuan L, Menéndez S, Zazo S, Dómine M, Salido M, Mojáil S, García de Herreros A, Rovira A, Albanell J, Arriola E. Targeting epithelial-to-mesenchymal transition with Met inhibitors reverts chemoresistance in small cell lung cancer. *Clin Cancer Res* 2014;20(4):938-50. IF 8.193. Q1.
- Cañadas I, Taus A, González I, Villanueva X, Gimeno J, Pijuan L, Dómine M, Sánchez-Font A, Vollmer I, Menéndez S, Arpí O, Mojáil S, Rojo F, Rovira A, Albanell J, Arriola E. High circulating hepatocyte growth factor levels associate with epithelial to mesenchymal transition and poor outcome in small cell lung cancer patients. *Oncotarget* 2014;5(14):5246-56. IF 6.627. Q1.
- Dalmases A, González I, Menéndez S, Arpí O, Corominas JM, Servitja S, Tusquets I, Chamizo C, Rincón R, Espinosa L, Bigas A, Eroles P, Furriol J, Lluch A, Rovira A, Albanell J, Rojo F. Deficiency in p53 is required for doxorubicin induced transcriptional activation of NF-κB target genes in human breast cancer. *Oncotarget* 2014;5(1):196-210. IF 6.627. Q1.
- García-Parra J, Dalmases A, Morancho B, Arpí O, Menéndez S, Sabbaghi M, Zazo S, Chamizo C, Madoz J, Eroles P, Servitja S, Tusquets I, Yélamos J, Lluch A, Arribas J, Rojo F, Rovira A, Albanell J. Poly (ADP-ribose) polymerase inhibition enhances trastuzumab antitumour activity in HER2 overexpressing breast cancer. *Eur J Cancer* 2014;50(15):2725-34. IF 4.819. Q1.
- Prat A, Lluch A, Albanell J, Barry WT, Fan C, Chacón JI, Parker JS, Calvo L, Plazaola

- A, Arcusa A, Seguí-Palmer MA, Burgués O, Ribelles N, Rodríguez-Lescure A, Guerrero A, Ruiz-Borrego M, Munarriz B, López JA, Adamo B, Cheang MC, Li Y, Hu Z, Gulley ML, Vidal MJ, Pitcher BN, Liu MC, Citron ML, Ellis MJ, Mardis E, Vickery T, Hudis CA, Winer EP, Carey LA, Caballero R, Carrasco E, Martín M, Perou CM, Alba E. Predicting response and survival in chemotherapy-treated triple-negative breast cancer. *Br J Cancer* 2014;111(8):1532-41. IF 4.817. Q1.
- Rojo F, Domingo L, Sala M, Zazo S, Chamizo C, Menéndez S, Arpí O, Corominas JM, Bragado R, Servitja S, Tusquets I, Nonell L, Macià F, Martínez J, Rovira A, Albanell J, Castells X. Gene expression profiling in true interval breast cancer reveals overactivation of the mTOR signaling pathway. *Cancer Epidemiol Biomarkers Prev* 2014;23(2):288-99. IF 4.324. Q1.
- Vidal J, Clavé S, de Muga S, González I, Pijuan L, Gimeno J, Remón J, Reguart N, Viñolas N, Gironés R, Bernet L, Majem M, Bosch-Barrera J, Porta R, Alonso N, Palmero R, Taus A, Albanell J, Espinet B, Salido M, Arriola E. Assessment of ALK status by FISH on 1000 Spanish non-small cell lung cancer patients. *J Thorac Oncol* 2014;9(12):1816-20. IF 5.8. Q1.

Ongoing Research Projects 2014

- Factores moleculares predictivos de respuesta a la quimioterapia en cáncer urotelial: análisis del papel de los microARNs como factores de resistencia a quimioterapia basada en platino
 - > Fondo de Investigación Sanitaria. ISCIII (Pl10/02112)
 - > Principal researcher: Bellmunt Molins, Joaquim
- Mecanismos de resistencia adquirida al tratamiento con anticuerpos monoclonales anti-EGFR panitumumab y cetuximab en cáncer colorrectal
 - > Fondo de Investigación Sanitaria. ISCIII (Pl12/00989)
 - > Principal researcher: Montagut Viladot, Clara
- Identificación de mecanismos de resistencia a nuevos anticuerpos anti-HER en cáncer de mama
 - > Fondo de Investigación Sanitaria. ISCIII (Pl12/00680)
 - > Principal researcher: Albanell Mestres, Joan
- Mecanismos de resistencia adquirida a trastuzumab en cáncer gástrico
 - > Associació Espanyola Contra el Càncer de Catalunya (11964)
 - > Principal researcher: Montagut Viladot, Clara
- Identificación de dianas terapéuticas mediadoras de transición epitelio mesénquima (EMT) y quimioresistencia en cáncer de pulmón de célula pequeña (CPCP)

- > Fondo de Investigación Sanitaria. ISCIII
(PI13/00140)
- > Principal researcher: Arriola Aperribay, Edurne
- Efectos antitumorales de terapias dirigidas con elevada selectividad contra la vía de PI3K-AKTmTOR (Inhibidores TORC1/2 y PI3K α) en cáncer de vejiga. Estudio de marcadores moleculares
- > Fondo de Investigación Sanitaria. ISCIII
(PI13/01893)
- > Principal researcher: Bellmunt Molins, Joaquim

Participation in Research Networks

- Red Temática de Investigación Cooperativa en Cáncer
 - > Fondo de Investigación Sanitaria. ISCIII.
Subprograma RETICS (RD12/0036/0051)
 - > Principal researcher: Albanell Mestres, Joan

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya. Grup de Recerca en Terapèutica Experimental del Càncer. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 740)
 - > Principal researcher: Albanell Mestres, Joan

Clinical Trials Signed in 2014

- Phase I studies: 1 (2014/5571)
- Phase I b studies: 2 (2014/5733, 2014/5680)
- Phase II studies: 9 (2013/5399, 2013/5440, 2014/5605, 2014/5568, 2014/5525, 2014/5610, 2014/5734, 2014/5732, 2014/5859)
- Phase III studies: 9 (2014/5608, 2014/5671, 2014/5681, 2014/5646, 2014/5645, 2014/5644, 2014/5731, 2013/5404, 2013/5400)
- Observational studies: 4 (2014/5521, 2014/5735, 2014/5832, 2014/5865)

Patents

- Fundació Institut Mar d'Investigacions Mèdiques (IMIM). Hepatocyte Growth factor as marker of prognosis in small cell lung cancer (SCLC). Arriola, Edurne; Cañadas, Israel; Rovira, Ana; Albanell, Joan. European Patent Office. 24/04/2014. P2978PCoo.
- Fundació Institut Mar d'Investigacions Mèdiques (IMIM). Mutations in the extracellular domain III of epidermal growth factor receptor gene. Montagut, Clara; Bellosillo, Beatriz; Rovira, Ana; Albanell, Joan; Dalmases, Alba. European Patent Office. 28/07/2014. EP14382288.



Molecular Mechanisms of Lung Cancer Predisposition

RESEARCH GROUP

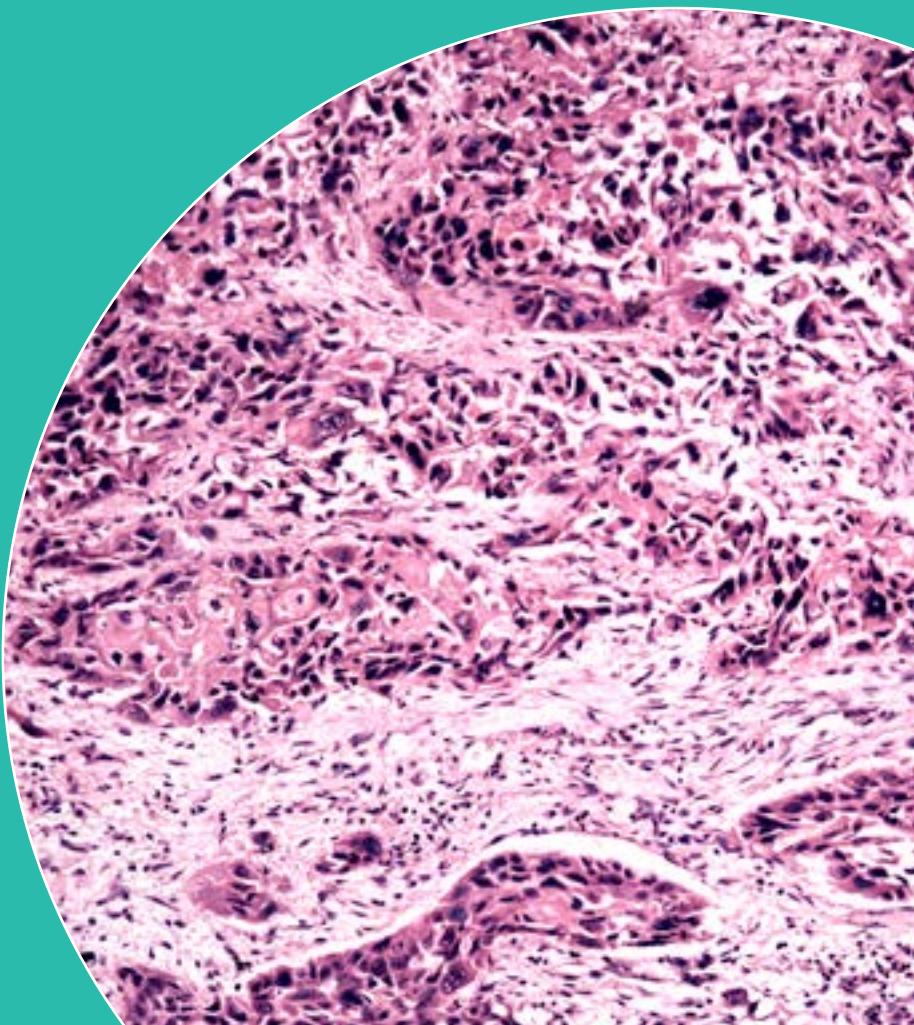


Coordinator

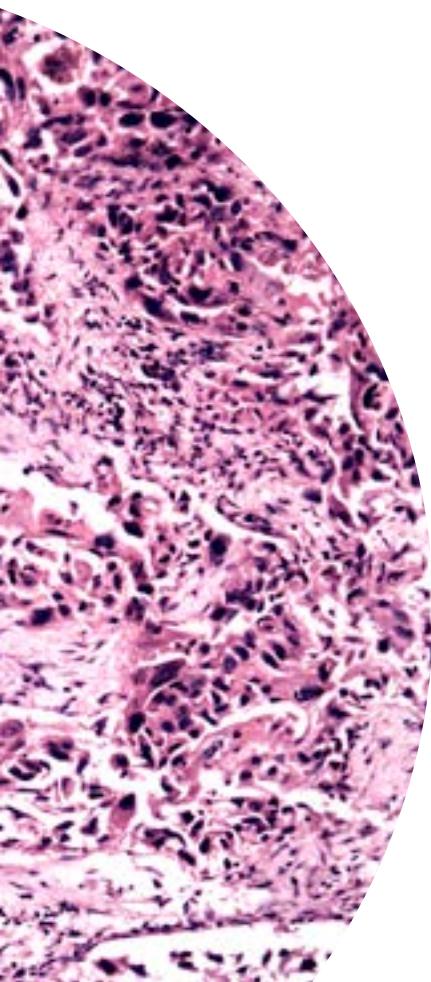
Esther Barreiro Portela

Members

Alba Chacón Cabrera
Víctor Curull Serrano
Marisol Domínguez Álvarez
Marta Palafox Sánchez
Lara Pijuan Andújar
Alberto Rodríguez Fuster
Albert Sánchez Font
Mònica Vilà Ubach



Our current goals are to determine the specific mechanisms and signaling pathways whereby oxidative stress and inflammation lead to cachexia (cancer-induced cachexia models) and dysplasia in the airways of patients with chronic obstructive pulmonary disease (COPD, COPD-lung cancer models). In a second stage, specific therapeutic strategies for each condition will also be explored.



Main Publications 2014

- Arismendi E, Rivas E, Agusti A, Rios J, Barreiro E, Vidal J, Rodríguez-Roisín R. The Systemic Inflammome of Severe Obesity before and after Bariatric Surgery. *PLoS ONE* 2014;9(9):e107859. IF 3.534. Q1.
- Balch WE, Sznajder JI, Budinger S, Finley D, Laposky AD, Cuervo AM, Benjamin IJ, Barreiro E, Morimoto RI, Postow L, Weissman AM, Gail D, Banks-Schlegel S, Croxton T, Gan W. NHLBI Workshop: Malfolded Protein Structure and Proteostasis in Lung Diseases. *Am J Respir Crit Care Med* 2014;189(1):96-103. IF 11.986. Q1.
- Barreiro E. Protein carbonylation and muscle function in COPD and other conditions. *Mass Spectrom Rev* 2014;33(3):219-236. IF 8.053. Q1.
- Barreiro E, Criner GJ. Update in chronic obstructive pulmonary disease 2013. *Am J Respir Crit Care Med* 2014;189(11):1337-1344. IF 11.986. Q1.
- Chacón-Cabrera A, Fermoselle C, Urtreger AJ, Mateu-Jiménez M, Diament MJ, Bal de Kier Joffé ED, Sandri M, Barreiro E. Pharmacological Strategies in Lung Cancer-Induced Cachexia: Effects on Muscle Proteolysis, Autophagy, Structure, and Weakness. *J Cell Physiol* 2014;229(11):1660-1672. IF 3.874. Q1.
- Chacón-Cabrera A, Rojas Y, Martínez-Caro L, Vilà M, Nin N, Ferruelo A, Esteban A, Lorente JA, Barreiro E. Influence of mechanical ventilation and sepsis on redox balance in diaphragm, myocardium, limb muscles, and lungs. *Transl Res* 2014;164(6):477-495. IF 4.044. Q1.
- Domínguez-Álvarez M, Sabaté M, Vilà M, Galdiz B, Álvarez FJ, Casadevall C, Gea J, Barreiro E. Molecular and physiological events in respiratory muscles and blood of rats exposed to inspiratory threshold loading. *Transl Res* 2014; 163(5):478-493. IF 4.044. Q1.
- Puig-Vilanova E, Aguiló R, Rodríguez-Fuster A, Martínez-Llorens JM, Gea J, Barreiro E. Epigenetic mechanisms in respiratory muscle dysfunction of patients with chronic obstructive pulmonary disease. *PLoS ONE* 2014;9(11):e111514. IF 3.534. Q1.
- Puig-Vilanova E, Ausin P, Martínez-Llorens JM, Gea J, Barreiro E. Do epigenetic events take place in the vastus lateralis of patients with mild chronic obstructive pulmonary disease? *PLoS ONE* 2014;9(7):e102296. IF 3.534. Q1.
- Slot IG, van den Borst B, Hellwig VA, Barreiro E, Schols AMWJ, Gosker HR. The Muscle Oxidative Regulatory Response to Acute Exercise is Not Impaired in Less

Advanced COPD Despite a Decreased Oxidative Phenotype. PLoS ONE 2014;9(2):e90150. IF 3.534. Q1.

Ongoing Research Projects 2014

- Alteraciones epigenéticas y autofagia en la predisposición al cáncer de pulmón de los pacientes con EPOC: asociaciones con el estrés oxidativo y la inflamación; 2012-2014.
 - > Fondo de Investigación Sanitaria. ISCIII (PI11/02029)
 - > Principal researcher: Barreiro Portela, Esther
- Evaluación e impacto clínico de la detección de micrometástasis ganglionares en pacientes intervenidos de carcinoma broncogénico mediante técnicas de inmunohistoquímica
 - > Fundación Mutua Madrileña (AP74702010)
 - > Principal researcher: Rodríguez Fuster, Alberto

Participation in Research Networks

- CIBERES: Red Temática en Enfermedades Respiratorias
 - > Fondo de Investigación Sanitaria. ISCIII (CBo6/o6/0043)
 - > Principal researcher: Gea Guiral, Joaquim

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Unitat de Recerca en Múscul i Aparell Respiratori (URMAR). 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 424)
 - > Principal researcher: Gea Guiral, Joaquim

Molecular Mechanisms of Tumorigenesis

RESEARCH GROUP

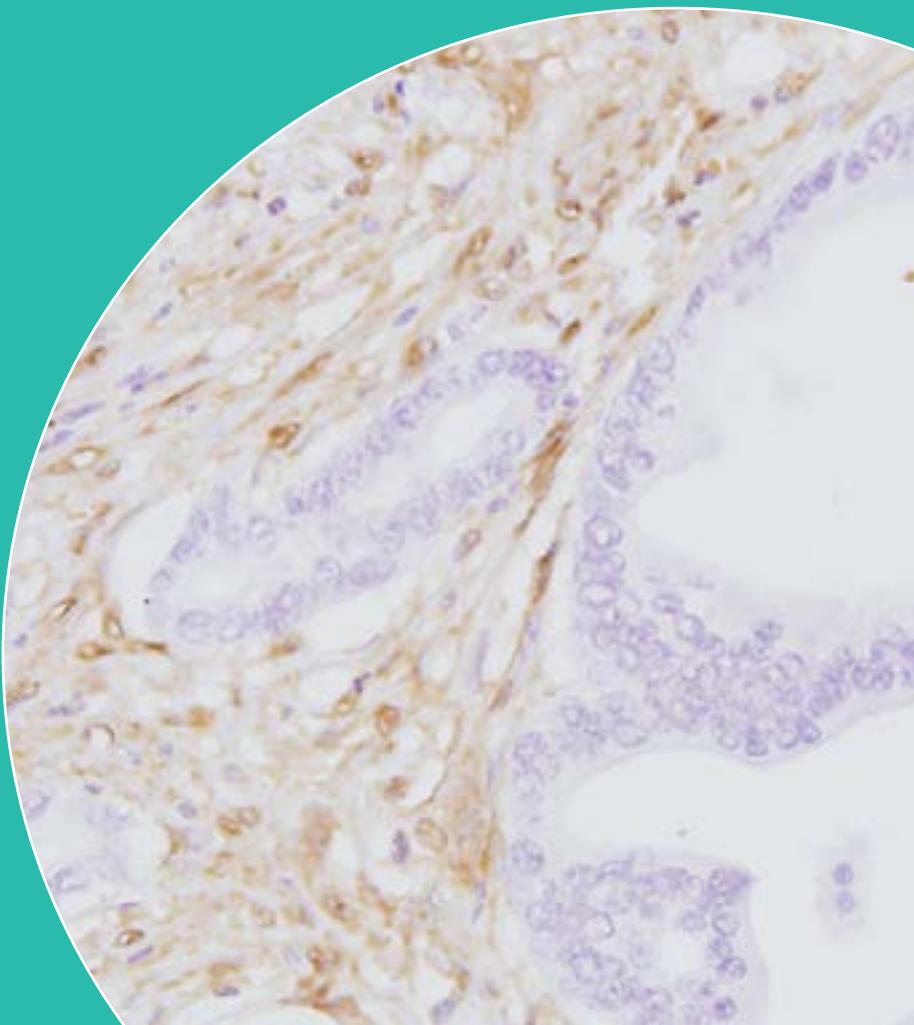


Coordinator

Pilar Navarro Medrano

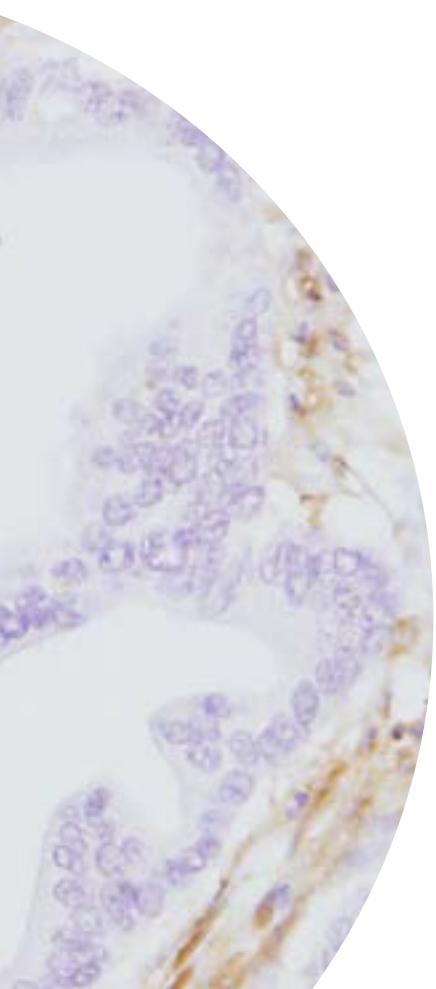
Members

Daniel Acemel Ballesteros
Francisco Alameda Quitllet
Héctor Anta Rodríguez
Joan Gibert Fernández
Neus Martínez Bosch
Mireia Moreno Merino
Carlos Alberto Orozco Castaño
Anouchka Lee Skoudy Haym



The objective of our group is the identification of different molecular mechanisms associated to tumor progression. In particular we focus on:

- i) the role of Galectin-1 in pancreatic carcinogenesis and its possible use as a biomarker and/or therapeutic target for pancreatic cancer (PI: Pilar Navarro);
- ii) the control of gene expression in cancer by CPEB-mediated mRNA translational regulation (PI: Pilar Navarro); and
- iii) the use of ES cells as a model for the characterization of exocrine differentiation during pancreatic development and pancreas cancer (PI: Anouchka Skoudy).



Main Publications 2014

- Alba-Castellón L, Batlle R, Francí C, Fernández-Aceñero MJ, Mazzolini R, Peña R, Loubat J, Alameda F, Rodríguez R, Curto J, Albanell J, Muñoz A, Bonilla F, Ignacio Casal J, Rojo F, García de Herreros A. Snail1 expression is required for sarcomagenesis. *Neoplasia* 2014;16(5):413-421. IF 5.398. Q1.
- De la Fuente H, Cruz-Adalia A, Martínez del Hoyo G, Cibrian-Vera D, Bonay P, Pérez-Hernández D, Vázquez J, Navarro P, Gutiérrez-Gallego R, Ramirez-Huesca M, Martín P, Sánchez-Madrid F. The leukocyte activation receptor CD69 controls T cell differentiation through its interaction with Galectin-1. *Mol Cell Biol* 2014;34(13):2479-2487. IF 5.036. Q1.
- Martínez-Bosch N, Fernández-Barrena MG, Moreno M, Ortiz-Zapater E, Munné-Collado J, Iglesias M, André S, Gabius H-J, Hwang RF, Poirier F, Navas C, Guerra C, Fernández-Zapico ME and Navarro P. Galectin-1 drives pancreatic carcinogenesis through stroma remodeling and Hedgehog signaling activation. *Cancer Res* 2014;74(13):3512-3524. IF 9.284. Q1.
- Martínez-Bosch N, Iglesias M, Munné-Collado J, Martínez-Cáceres C, Moreno M, Guerra C, Yélamos J and Navarro P. Parp-1 genetic ablation in Ela-myc mice unveils novel roles for Parp-1 in pancreatic cancer. *J Pathol* 2014;234(2):214-227. IF 7.33. Q1.
- Martínez-Bosch N, Navarro P. Galectin-1 as a therapeutic target in pancreatic cancer: the tumor stroma in the spotlight. *Cancer Cell and Microenvironment* 2014;1(5):e296.
- Martínez-Bosch N, Navarro P. Targeting Galectin-1 in pancreatic cancer: immune surveillance on guard. *Oncoimmunology* 2014;3(8):e952201. IF 6.283. Q1.
- Nicolau P, Mancebo G, Agramunt S, Solé-Sedeño JM, Bellosillo B, Muset MM, Lloveras B, Alameda F, Carreras R. Urine human papillomavirus prevalence in women with high-grade cervical lesions. *Eur J Obstet Gynecol Reprod Biol*. 2014;183:12-15. IF 1.627. Q3.
- Ramos-Fernández E, Tajes M, Palomer E, Ill-Raga G, Bosch-Morató M, Guivernau B, Román-Dégano I, Eraso-Pichot A, Alcolea D, Fortea J, Nuñez L, Paez A, Alameda F, Fernández-Busquets X, Lleó A, Elosúa R, Boada M, Valverde MA, Muñoz FJ. Posttranslational nitro-glycative

modifications of albumin in Alzheimer's disease: implications in cytotoxicity and amyloid- β peptide aggregation. *J Alzheimers Dis* 2014;40(3):643-657.
FI 3.612. Q2.

Ongoing Research Projects 2014

- Identification of new targets in cancer from tissue plasminogen activator (tPA): Galectin-1 and CPEB4. Design of therapeutic strategies
 - > Fondo de Investigación Sanitaria. ISCIII (PI11/01562)
 - > Principal researcher: Navarro Medrano, Pilar
- Characterization of the molecular mechanisms of Eya protein in pancreatic cancer: implications as diagnostic and therapeutic tool
 - > Fondo de Investigación Sanitaria. ISCIII (PI11/01899)
 - > Principal researcher: Skoudy Haym, Anouchka
- Gene expression profiling (GEP) of Glioblastoma, including long intergenic non-coding RNA (lncrna), in a homogeneous population: correlation with immunophenotype, radiology clinical outcome and response to therapy a multicenter study
 - > Fundació La Marató de TV3 (20130332)
 - > Principal researcher: Alameda Quitllet, Francisco

Participation in Research Networks

- Red Temática de Investigación Cooperativa en Cáncer (RTICC). 2012-2016
 - > MICINN-FIS
 - > Principal researcher: Albanell, Joan (node coordinator)

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Cellular and Molecular Mechanisms of Disease. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 143)
 - > Principal researcher: Navarro Medrano, Pilar

Poly (ADP-Ribose) Polymerases

RESEARCH GROUP



Coordinator

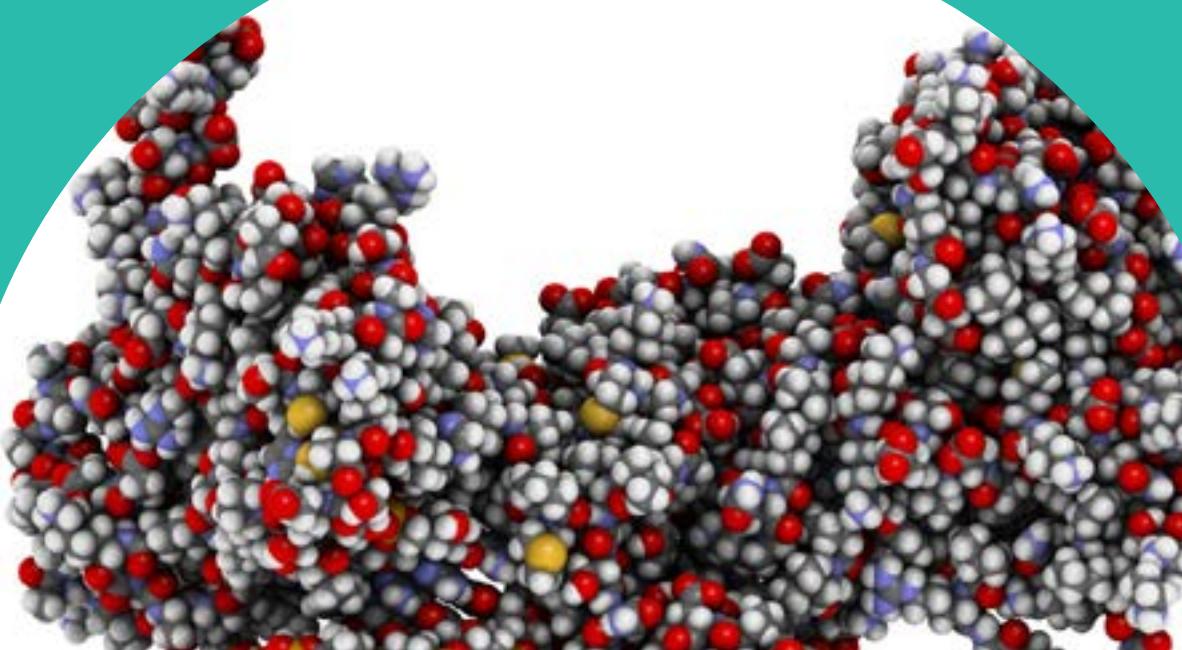
José Yélamos López

Members

Coral Ampurdanés Descals

Judith Navarro Serer

The aim of this group is to investigate the role of poly(ADP-ribosyl)ation of nuclear proteins, catalyzed by PARP family members (especially PARP-1 and PARP-2), as a critical signaling pathway at nuclear level, in both innate and acquired immune response. The results from this study could allow the identification of new therapeutic targets in different pathophysiological conditions associated with the immune system.



Main Publications 2014

- García-Parra J, Dalmases A, Morancho B, Arpí O, Menéndez S, Sabbaghi M, Zazo S, Chamizo C, Madoz J, Eroles P, Servitja S, Tusquets I, Yélamos J, Lluch A, Arribas J, Rojo F, Rovira A, Albanell J. Poly (ADP-ribose) polymerase inhibition enhances trastuzumab antitumour activity in HER2 overexpressing breast cancer. *Eur J Cancer* 2014;50(15):2725-2734. IF 4.819. Q1.
- Martínez VG, Escoda-Ferran C, Tadeu Simões I, Arai S, Orta Mascaró M, Carreras E, Martínez-Florensa M, Yélamos J, Miyazaki T, Lozano F. The macrophage soluble receptor AIM/Api6/CD5L displays a broad pathogen recognition spectrum and is involved in early response to microbial aggression. *Cell Mol Immunol* 2014;11(4):343-354. FI 4.185. Q2.
- Martínez-Bosch N, Iglesias M, Munné-Collado J, Martínez-Cáceres C, Moreno M, Guerra C, Yélamos J*, Navarro P*. Parp-1 genetic ablation in Ela-myc mice unveils novel roles for Parp-1 in pancreatic cancer. *J Pathol.* 2014;234(2):214-227. (* Equal contribution as Senior Authors). IF 7.33. Q1.

Ongoing Research Projects 2014

- Interacción funcional entre Poli (ADP-ribose) polimerasa-2 y rutas de respuesta al daño en el DNA durante la timopoiesis y la hematopoiesis
 - > Ministerio de Ciencia e Innovación (SAF2011-26900)
 - > Principal researcher: Yélamos López, José
- Exploring synthetic lethal interactions between PARP and the DNA damage response in cancer treatment
 - > Fundació La Marató de TV3 (20134130)
 - > Principal researcher: Yélamos López, José

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Diferenciació i Fisiopatologia Limfocitària. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 184)
 - > Principal researcher: Yélamos López, José

Stem Cells and Cancer

RESEARCH GROUP

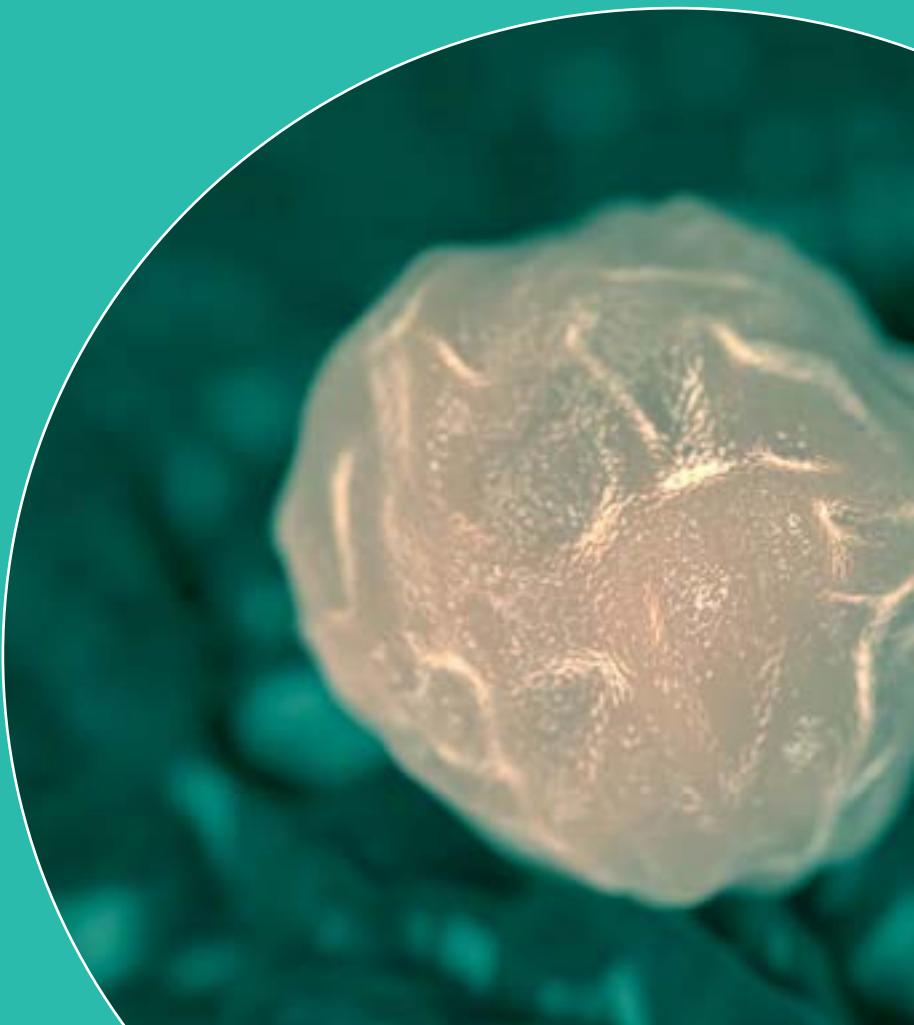


Coordinators

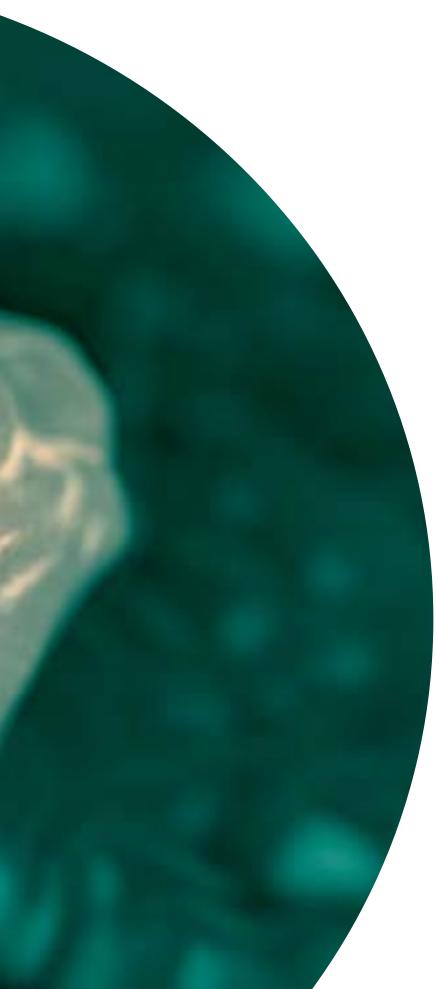
Anna Bigas Salvans
Lluís Espinosa Blay

Members

Juan Bertran Comulada
Eva Ferrando Martorell
Christos Gekas
Jéssica González Miranda
Erika López Arribillaga
Cristina Porcheri
Cristina Ruiz Herguido
Roshani Sinha



Our research group studies the molecular mechanisms regulating the generation and maintenance of stem cells and their differentiation to functional cells. We particularly focus on studying the signaling pathways and the activation effects that control the hematopoietic and intestinal system. Our goal is to understand how these signals are perturbed in oncogenic processes.



Main Publications 2014

- Alaña L, Sesé M, Cánovas V, Punyal Y, Fernández Y, Abasolo I, de Torres I, Ruiz C, Espinosa L, Bigas A, Ramon y Cajal S, Fernández PL, Serras F, Corominas M, Thomson TM, Paciucci R. Prostate tumor OVerexpressed-1 (PTOV1) down-regulates HES1 and HEY1 notch targets genes and promotes prostate cancer progression. *Mol Cancer* 2014;13(1):74. IF 5.397. Q1.
- Dalmases A, González I, Menéndez S, Arpí O, Corominas JM, Servitja S, Tusquets I, Chamizo C, Rincón R, Espinosa L, Bigas A, Eroles P, Furriol J, Lluch A, Rovira A, Albanell J, Rojo F. Deficiency in p53 is required for doxorubicin induced transcriptional activation of NF-κB target genes in human breast cancer. *Oncotarget* 2014;5(1):196-210. IF 6.627. Q1.
- Espinosa L, Bigas A, Mulero MC. Novel functions of chromatin-bound IκBα in oncogenic transformation. *Br J Cancer* 2014;111(9):1688-1692. IF 4.817. Q1.
- Gerhardt DM, Pajcini KV, d'Altri T, Tu L, Jain R, Xu L, Chen MJ, Rentschler S, Shestova O, Wertheim GB, Tobias JW, Kluk M, Wood AW, Aster JC, Gimotty PA, Epstein JA, Speck N, Bigas A, Pear WS. The Notch1 transcriptional activation domain is required for development and reveals

a novel role for Notch1 signaling in fetal hematopoietic stem cells. *Genes Dev* 2014;28(6):576-593. IF 12.639. Q1.

- Guiu J, Bergen DJ, de Pater E, Islam AB, Ayllón V, Gama-Norton L, Ruiz-Herguido C, González J, López-Bigas N, Menéndez P, Dzierzak E, Espinosa L, Bigas A. Identification of Cdca7 as a novel Notch transcriptional target involved in hematopoietic stem cell emergence. *J Exp Med* 2014;211(12):2411-2423. IF 13.912. Q1.

Ongoing Research Projects 2014

- Determinación del destino hematopoyético en el embrión de ratón: estudio para generar células madre
 - > Ministerio de Ciencia e Innovación (SAF2010-15450)
 - > Principal researcher: Bigas Salvans, Anna
- Estudio de las funciones tumorigénicas asociadas a elementos específicos de NFkB: Identificación de nuevas dianas terapéuticas
 - > Fondo de Investigación Sanitaria. ISCIII (PI10/01128)
 - > Principal researcher: Espinosa Blay, Lluís
- Mecanismos moleculares implicados en el desarrollo de leucemias infantiles
 - > Asociación Española Contra el Cáncer (AECC) (Cl120588BIGA)
 - > Principal researcher: Bigas Salvans, Anna

- Notch1 and B-Catenin Crosstalk in T-cell Acute Lymphoblastic Leukemia
 - > Association for International Cancer Research (AICR) (13-0064)
 - > Principal researcher: Bigas Salvans, Anna
- Nuclear active IKKa as biomarker and new therapeutic target for Colorectal Cancer
 - > Fundació La Marató de TV3 (20131210)
 - > Principal researcher: Espinosa Blay, Lluís
- Caracterización de phospho-sumo-IkB α y p45-IKK α como biomarcadores y posibles dianas terapéuticas en cáncer
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/00448)
 - > Principal researcher: Espinosa Blay, Lluís
- Diseccionando el proceso de especificación de células madre hematopoyéticas normales y leucémicas
 - > Ministerio de Economía y Competitividad (SAF2013-40922-R)
 - > Principal researcher: Bigas Salvans, Anna

Other

- Anna Bigas was elected to the European Molecular Biology Organization (EMBO) membership.

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Cèl·lules Mare i Càncer. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 124)
 - > Principal researcher: Bigas Salvans, Anna

Translational Research in Colorectal Neoplasia

RESEARCH GROUP



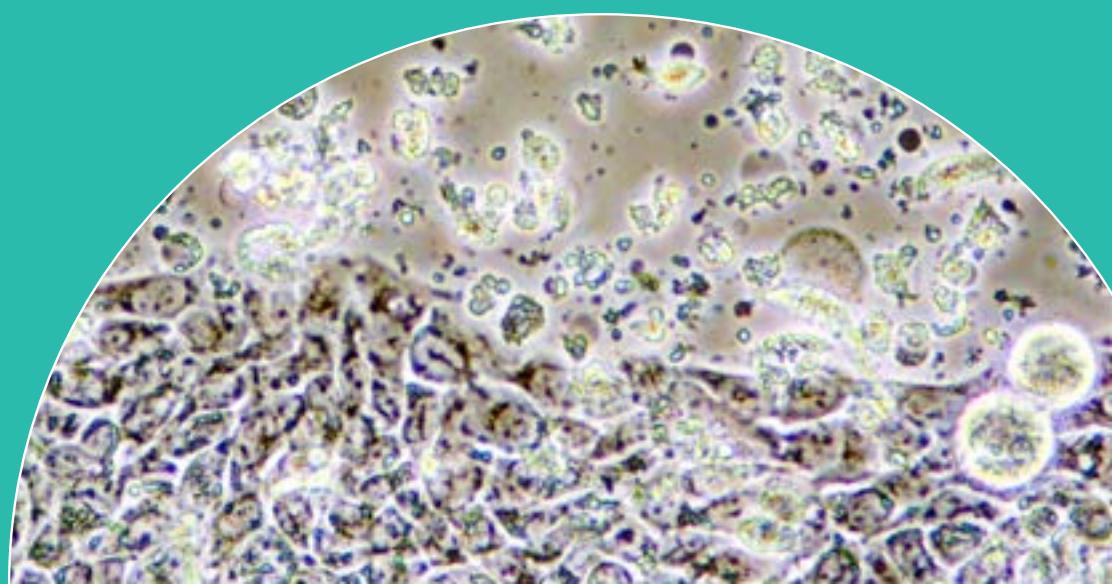
Coordinator

Montserrat Andreu García

Members

Marco Antonio Álvarez González
Cristina Álvarez Urturi
Xavier Bessa Caserras
Felip Bory Ros
Laura Carot Bastard
Josep M. Dedeu Cuscó
Lucas Ilzarbe Sánchez
Lucía Márquez Mosquera
M. Francisca Murciano Gonzalo
Fausto Riu Pons
Agustín Seoane Urgorri

The group for Translational Research in Colorectal Neoplasia has defined the main strategic objective in its clinical and translational research as: to deepen the understanding of the pathogenesis of different colorectal neoplastic processes and their prevention and treatment. Currently our research is focused on identifying factors related with metachronous development of neoplastic lesions, especially advanced colorectal adenomas, in order to improve the surveillance of these patients, as well as identifying epigenetic markers of disease progression in patients with CRC.



Main Publications 2014

- Augè JM, Pellisé M, Escudero JM, Hernández C, Andreu M, Grau J, Burón A, López-Ceron M, Bessa X, Serradesanferm A, Piracés M, Macià F, Guayta R, Filella X, Molina R, Jiménez-Povedano W, Castells A, for the PROCOLON group. Risk Stratification for Advanced Colorectal Neoplasia According to Fecal Hemoglobin Concentration in a Colorectal Cancer Screening Program. *Gastroenterology* 2014;147(3):628-636.e1. IF 13.926. Q1.
- Bessa X. Serrated polyps and synchronous advanced neoplasia in average-risk persons. *Gastroenterol Hepatol (NY)* 2014;10(3):190-192.
- Bujanda L, Sarasqueta C, Lanas A, Quintero E, Cubiella J, Hernández V, Morillas JD, Pérez-Fernández T, Salas D, Andreu M, Carballo F, Bessa X, Portillo I, Jover R, Balaguer F, Cosme A, Castells A; COLONPREV study investigators. Effect of oral anticoagulants on the outcome of faecal immunochemical test. *Br J Cancer* 2014;110(5):1334-1337. IF 4.817. Q1.
- Castells A, Quintero E, Álvarez C, Bujanda L, Cubiella J, Salas D, Lanas A, Carballo F, Morillas JD, Hernández C, Jover R, Hijona E, Portillo I, Enríquez-Navascués JM, Hernández V, Martínez-Turnes A, Menéndez-Villalva C, González-Mao C, Sala T, Ponce M, Andrés M, Teruel G, Peris A, Sopeña F, González-Rubio F, Seoane-Ugorri A, Grau J, Serradesanferm A, Pozo A, Pellisé M, Balaguer F, Ono A, Cruzado J, Pérez-Riquelme F, Alonso-Abreu I, Carrillo-Palau M, de la Vega-Prieto M, Iglesias R, Amador J, Blanco JM, Sastre R, Ferrández J, González-Hernández MJ, Andreu M, Bessa X; COLONPREV Study Investigators. Rate of detection of advanced neoplasms in proximal colon by simulated sigmoidoscopy vs fecal immunochemical tests. *Clin Gastroenterol Hepatol* 2014;12(10):1708-1716.e4. IF 6.534. Q1.
- Esteban-Jurado C, Garre P, Vila M, Lozano JJ, Pristoupilova A, Beltrán S, Abulí A, Muñoz J, Balaguer F, Ocaña T, Castells A, Piqué JM, Carracedo A, Ruiz-Ponte C, Bessa X, Andreu M, Bujanda L, Caldés T, Castellví-Bel S. New genes emerging for colorectal cancer predisposition. *World J Gastroenterol* 2014;20(8):1961-1971. IF 2.433. Q2.
- Fernández-Rozadilla C, Cazier JB, Tomlinson I, Brea-Fernández A, Lamas

MJ, Baiget M, López-Fernández LA, Clofent J, Bujanda L, González D, de Castro L, Hemminki K, Bessa X, Andreu M, Jover R, Xicola RM, Llor X, Moreno V, Castells A, Castellví-Bel S, Carracedo A, Ruiz-Ponte C, The EPICOLON consortium for the Gastrointestinal Oncology Group of the Spanish Gastroenterological Association. A genome-wide association study on copy-number variation identifies a 11q11 loss as a candidate susceptibility variant for colorectal cancer. *Hum Genet* 2014;133(5):525-534. IF 4.522. Q1.

• Gonzalo V, Lozano JJ, Alonso-Espinaco V, Moreira L, Muñoz J, Pellisé M, Castellví-Bel S, Bessa X, Andreu M, Xicola RM, Llor X, Ruiz-Ponte C, Carracedo A, Jover R, Castells A, Balaguer F; Gastrointestinal Oncology Group of the Spanish Gastroenterological Association. Multiple sporadic colorectal cancers display a unique methylation phenotype. *PLoS ONE* 2014;9(3):e91033. IF 3.534. Q1.

• Pardini B, Verderio P, Pizzamiglio S, Nici C, Maiorana MV, Naccarati A, Vodickova L, Vymetalkova V, Veneroni S, Daidone MG, Ravagnani F, Bianchi

T, Bujanda L, Carracedo A, Castells A, Ruiz-Ponte C, Morreau H, Howarth K, Jones A, Castellví-Bel S, Li L, Tomlinson I, van Wezel T, Vodicka P, Radice P, Peterlongo P, the EPICOLON Consortium (... Andreu M, Abulí A, Bessa X, Iglesias M, Seoane A, Bory F, Navarro G, Bellosillo B, Dedeu JM, Álvarez C, Puigvehí M...). Association between CASP8 -652 6N del polymorphism (rs3834129) and colorectal cancer risk: results from a multi-centric study. *PLoS ONE* 2014;9(1):e85538. IF 3.534. Q1.

Ongoing Research Projects

- Identificación de marcadores epigenéticos de progresión en una cohorte prospectiva de pacientes con cáncer colorrectal (CCR)
 - > Fondo de Investigación Sanitaria. ISCIII (Pl12/01177)
 - > Principal researcher: Bessa Caserras, Xavier
- Variantes genéticas de susceptibilidad del CCR. Utilidad en un programa de cribado. Estudio de asociación caso-control
 - > Fondo de Investigación Sanitaria. ISCIII (Pl10/o0918)
 - > Principal researcher: Andreu García, Montserrat

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Translacional en Gastroenterología. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 443)
 - > Principal researcher: Andreu García, Montserrat

Clinical Trials Signed in 2014

- Phase III studies: 5 (2013/5187, 2014/5594, 2014/5856, 2014/5612, 2014/5628)
- Observational studies: 2 (2013/5222, 2014/5601/I)

Translational Research in Hematologic Neoplasms Group

RESEARCH GROUP

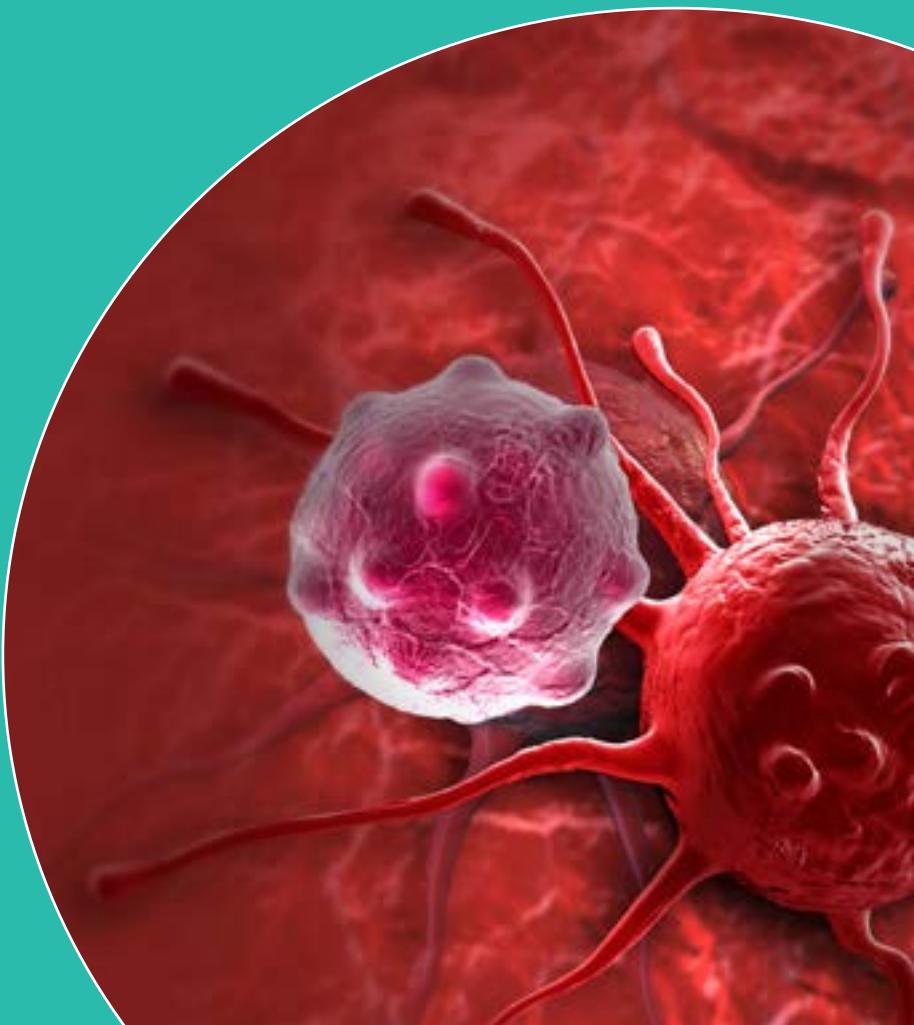


Coordinator

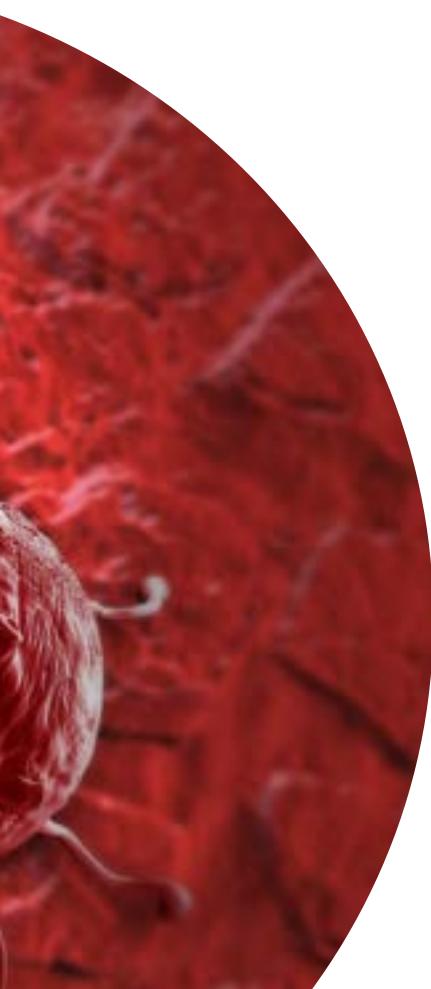
Lourdes Florensa Brichs

Members

Leonor Arenillas Rocha
Luis Carlos Barranco Sanz
Gonzalo Blanco Ares
Xavier Calvo González
Sergi Clavé Safont
Lluís Colomo Saperas
Beatriz Costán Medina
Blanca Espinet Solà
Ana Ferrer del Álamo
Fernando Gallardo Hernández
Raquel Longarón Rozalen
Belén Lloveras Rubio
M. Carme Melero Vilella
Carme Pedro Olivé
Anna Puiggros Metje
María Rodríguez Rivera
Marta Salido Galeote



The Translational Research in Hematologic Neoplasms Group (GRETNHE) is integrated within the Cancer Programme of the Hospital del Mar Medical Research Institute (IMIM). The GRETNHE is a multidisciplinary group with different research areas. Among them, the most relevant are myelodysplastic syndromes (MDS), myeloproliferative neoplasms / myelodysplastic syndromes (MPN/ MDS), chronic lymphocytic leukemia / monoclonal B cell lymphocytosis (CLL/MBL), mantle cell lymphoma / monoclonal asymptomatic lymphocytosis cyclin D1 positive (MCL/MALD1), splenic marginal zone lymphoma (SMZL) and cutaneous lymphomas (CL). Our aim is the phenotypic, cytogenetic and molecular characterization of these entities.



Main Publications 2014

- Álvarez-Larrán A, Ancochea A, García M, Climent F, García-Pallarols F, Angona A, Senín A, Barranco C, Martínez-Avilés L, Serrano S, Bellosillo B, Besses C. WHO-histological criteria for myeloproliferative neoplasms: reproducibility, diagnostic accuracy and correlation with gene mutations and clinical outcomes. *Br J Haematol* 2014;166(6):911-919. IF 4.959. Q1.
- Espinet B, Ferrer A, Bellosillo B, Nonell L, Salar A, Fernández-Rodríguez C, Puigdecanet E, Gimeno J, García-García M, Vela MC, Luño E, Collado R, Navarro JT, de la Banda E, Abrisqueta P, Arenillas L, Serrano C, Lloreta J, Miñana B, Cerutti A, Florensa L, Orfao A, Sanz F, Solé F, Domínguez-Sola D, Serrano S. Distinction between asymptomatic monoclonal B-cell lymphocytosis with cyclin D1 overexpression and mantle cell lymphoma: from molecular profiling to flow cytometry. *Clin Cancer Res* 2014;20(4):1007-1019. IF 8.193. Q1.
- Menezes J, Acquadro F, Wiseman M, Gómez-López G, Salgado RN, Talavera-Casañas JG, Buño I, Cervera JV, Montes-Moreno S, Hernández-Rivas JM, Ayala R, Calasanz MJ, Larrayoz MJ, Florensa Brichs L, González-Vicent M, Pisano DG, Piris MA, Álvarez S, Cigudosa JC. Exome sequencing reveals novel and recurrent mutations with clinical impact in blastic plasmacytoid dendritic cell neoplasm. *Leukemia* 2014;28(4):823-829. IF 9.379. Q1.
- Puiggros A, Blanco G, Espinet B. Genetic Abnormalities in Chronic Lymphocytic Leukemia: Where We Are and Where We Go. *Biomed Res Int* 2014; 2014:435983.
- Puiggros A, Venturas M, Salido M, Blanco G, Fernández-Rodríguez C, Collado R, Valiente A, Ruiz-Xivillé N, Carrión A, Ortúñoz FJ, Luño E, Calasanz MJ, Ardanaz MT, Piñán MA, Talavera E, González MT, Ortega M, Marugán I, Ferrer A, Gimeno E, Bellosillo B, Delgado J, Hernández JA, Hernández-Rivas JM, Espinet B; on behalf of Grupo Cooperativo Español de Citogenética Hematológica (GCECGH) and Grupo Español de Leucemia Linfática Crónica (GELLC). Interstitial 13q14 deletions detected in the karyotype and translocations with concomitant deletion at 13q14 in chronic lymphocytic leukemia: Different genetic mechanisms but equivalent poorer clinical outcome. *Genes Chromosomes Cancer* 2014;53(9):788-797. IF 3.836. Q2.
- Rozman M, Navarro JT, Arenillas L, Aventín A, Giménez T, Alonso E, Perea

- G, Camós M, Navarrete M, Tuset E, Florensa L, Millá F, Nomdedéu J, de la Banda E, Díaz-Beyá M, Pratcorona M, Garrido A, Navarro B, Brunet S, Sierra J, Esteve J; on behalf of Grup Català de Citologia Hematològica and Spanish CETLAM Group (Grupo Cooperativo Para el Estudio y Tratamiento de las Leucemias Agudas Mieloblásticas). Multilineage dysplasia is associated with a poorer prognosis in patients with de novo acute myeloid leukemia with intermediate-risk cytogenetics and wild-type NPM1. *Ann Hematol* 2014;93(10):1695-1703. FI 2.396. Q3.
- Sánchez-González B, Ancochea A, García-Pallarols F, Jiménez C, Pedro C, Besses C. Feasible concomitant treatment with eltrombopag and oral anticoagulation in a patient with chronic immune thrombocytopenia and severe cardiac comorbidities. *Platelets* 2014;25(4):309-310. FI 2.627. Q2.
 - Xochelli A, Baliakas P, Moore S, Sole F, Wickham N, Salido M, Athanasiadou A, Oscier D, Stamatopoulos K. Translocation t(2;7)(p11;q21-22): A rare genetic aberration associated with B-cell lymphoproliferative disorders of marginal-zone origin. *Cancer Genet* 2014;207(6):281-283. FI 2.417. Q3.

Ongoing Research Projects 2014

- Biologic characterization of B-cells, T-cells and NK-cells of monoclonal B cell lymphocytosis with a CLL phenotype
 - > Fondo de Investigación Sanitaria. ISCIII (PI11/01621)
 - > Principal researcher: Espinet Solà, Blanca
- Characterization of the unclassifiable splenic B-cell lymphoma/leukemia (splenic diffuse red pulp small B-cell lymphoma and hairy variant)
 - > Fondo de Investigación Sanitaria. ISCIII (PI10/00366)
 - > Principal researcher: Ferrer del Álamo, Ana

Participation in Research Networks

- Spanish Society of Hematology and Hemotherapy (SEHH)
- Spanish Cooperative Group of Hematological Cytogenetics (GCECGH)
- Spanish Group of Hematological Cytology (GECH)
- Spanish Group of Chronic Lymphocytic Leukemia (GELLC)
- Spanish Group of Myelodysplastic Syndromes (GESMD)
- Spanish Association of Human Genetics (AEGH)



Cancer

Translational Research in Hematologic Neoplasms Group

- Lymphoma Group of the Spanish Association of Dermatology and Venereology (AEDV)
- European Cytogeneticists Association (ECA)
- Splenic B-cell Lymphoma Group (SBLG)
- Cytogenetic European Quality Assessment (CEOQA), Mature B&T Cell Neoplasms

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Traslacional en Neoplàsies Hematològiques (GRETNHE). 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 585)
 - > Principal researcher: Florensa Brichs, Lourdes

Clinical Trials Signed in 2014

- Phase II studies: 2 (2014/5613, 2014/5652)
- Observational studies: 1 (2014/5615)

79



Epidemiology and Public Health

The programme is made up of the following research groups:

Cardiovascular Epidemiology and Genetics

Roberto Elosua

Cardiovascular Risk and Nutrition

Montserrat Fitó

Clinical and Molecular Epidemiology of Cancer

Miquel Porta

Drug Abuse Epidemiology

Antònia Domingo

Epidemiology and Evaluation

Maria Sala

Health Services

Jordi Alonso

The programme associated groups are:

Occupational and Environmental Epidemiology

Manolis Kogevinas

Respiratory Health, Air Pollution, Childhood

Development

Jordi Sunyer

Social Epidemiology and Occupational Health

Fernando G. Benavides

The Epidemiology and Public Health Programme (EPISAP) includes 9 research groups with a total of approximately 130 professionals from the Hospital del Mar Medical Research Institute (IMIM), the Research Centre for Environmental Epidemiology (CREAL), and the

Pompeu Fabra University (UPF). All EPISAP research groups are recognized by the Catalan research grant agency (AGAUR) and are members of major Spanish collaborative research networks (CIBERs and RETICs).

EPISAP researchers apply advanced epidemiologic methods and approaches for a better understanding of: a) the frequency and burden of disease; b) major risk factors and underpinning mechanisms; and c) the role of health services and interventions, and their impact on the health outcomes of individuals and populations. Our research focuses on cancer, mental disorders, cardiovascular disease, and on environmental and occupational exposures.



Jordi Alonso
Programme Director



We carry out translational research and innovation. EPISAP researchers participate in community activities as expert members of committees and advisors of health system institutions and organizations.

Researchers from the programme have a longstanding research career with international recognition and have established solid relationships with many regional, national and international research institutions.

Education and training in epidemiology and public health for graduate, postgraduate and medical specialty students is a key activity of EPISAP. Many of our researchers are faculty members of Pompeu Fabra University (UPF) or the Autonomous University of Barcelona (UAB) and lead a variety of formal courses and programmes.

Lines of Research 2014

- Frequency, mortality and case-fatality trends in myocardial infarction (MI) and cardiovascular (CV) risk factors
- Effectiveness and costs of treatments in the acute phase of MI
- Predictive capacity of cardiovascular risk functions
- Common and rare genetic variants associated with CV traits
- Gene by Environment interaction in CV diseases
- High density lipoprotein (HDL) functionality and nutritional interventions
- Nutrigenomics: changes in gene expression than can be attributed to nutrients
- Interaction between diet and intestinal flora
- Epidemiology and management of obesity and diabetes
- Clinical and molecular epidemiology of exocrine pancreatic cancer
- Health effects of persistent organic pollutants
- Monitoring diagnostic and therapeutic delays in cancer

- Frequency and associated factors of alcohol and substance use in the general population
- Drug user characteristics and market supply of illegal substances
- Quality, effectiveness and costs of breast and colon cancer screening programmes
- Advanced health services research methods including simulation models
- Information systems for assessment of costs per patient and risk adjustment
- New strategies for improving quality and patient safety
- Advanced measurement methods for patient-reported outcomes (PROs)
- Distribution and correlates of perceived health and psychological wellbeing in the general population
- Frequency and risk factors of common mental disorders and suicide
- Cost-utility analyses of cancer therapies.
- Environmental, occupational and genetic factors related to cancer, respiratory disease and child health
- Exposure assessment using new biomedical technologies and implementing complex statistics and bioinformatics methods
- Environmental exposures in early life and neurodevelopment, obesity and metabolic syndrome, and allergy and asthma
- Work-related illnesses, workplace injuries, sickness absence, and return to work
- Quality and effectiveness of occupational health and risk prevention policies
- Occupational health inequalities, with a focus on migration

Objectives Achieved in 2014

► Scientific Objectives

In 2014, researchers on the programme have achieved the following:

- Published 305 papers in scientific journals ranging from *Nature Genetics*, *Endocrine Reviews*, and *PLOS Medicine* to journals internationally recognized in the fields of molecular, clinical, and environmental epidemiology: such a broad integration of basic, clinical and epidemiologic knowledge is one of our signs of identity worldwide.
- Some of these papers had a worldwide media impact (*BBC*, *The Guardian*, *The Times*, *El País*, *Daily Express*, *Huffington Post UK*, *Independent*, *Metro London*,



Medical News Today, CTV News, The Mirror, MSN News, Times of India, etc.), putting them in the top 5% of all articles ever monitored by Altmetric.

- Edited one book (*A Dictionary of Epidemiology*; Oxford University Press, 2014) and authored 8 book chapters, in addition to numerous reports, conferences and public presentations.

Investigators of the Cardiovascular Epidemiology and Genetics group and others have achieved the following:

- Evaluated the relationship between lifestyles (diet, physical activity), environmental exposure (air pollution, noise) and cardiovascular risk factors, and subclinical markers of atherosclerosis.
- Analyzed differences in the management and prognosis of myocardial infarction (MI) patients across Europe and developed a valid standardized and adjusted benchmarking monitoring tool.
- Contributed to the knowledge of the genetic architecture of several cardiovascular traits such as myocardial infarction, venous thromboembolism, atrial fibrillation, stroke and hypertension.

Investigators of the Cardiovascular Risk and Nutrition group and others have achieved the following:

- Registered a new patent: Amides of fatty acid for prevention and/or treatment of steatohepatitis (application number: P201431739, date of registration: 24/11/2014).
- Shown the effectiveness of Mediterranean diet in elderly at high cardiovascular risk in improving a heart failure biomarker and the antioxidant defense.
- Described an improvement of the cholesterol efflux from macrophages promoted by HDL after a high-polyphenol olive oil intervention.
- Identified an independent association of the oxidation of the LDL with 10-year shown benefits after bariatric surgery for metabolically healthy morbidly obese phenotype.
- Described a high prevalence of abdominal obesity in Spanish children, adolescents, and young patients who are of normal weight or overweight.

Investigators of the Clinical and Molecular Epidemiology of Cancer group and others have achieved the following:

- Shown that similar population variation patterns for persistent organic

pollutants are observed across multiple biomonitoring surveys, even when absolute concentrations differ widely.

- Found that significant subgroups of the general population accumulate mixtures of Persistent Toxic Pollutants at high body concentrations.
- Described the social discourse concerning pollution and contamination in Spain, and shown a significant tendency towards blaming the political and industrial sectors, as well as a profound distrust of the institutions responsible for safeguarding public health.

Investigators of the Drug Abuse Epidemiology group and others have achieved the following:

- Described predictors of change in the level of cocaine use among regular users outside treatment, showing that high consumption of alcohol and increasing use of other psychoactive drugs decreases the probability of reducing cocaine use.
- Established the relationship of work-related stress factors with substance use by gender.
- Studied the coverage of overdose prevention programs for opiate users and injectors in Catalonia.

Investigators of the Epidemiology and Evaluation group and others have achieved the following:

- Completed the analysis of a retrospective cohort of 550,000 screened women to study the progression from benign lesions to breast cancer.
- Assembled a new cohort of 3000 women with breast cancer from 11 hospitals in Spain.

Investigators of the Health Services research group and others have achieved the following:

- Shown a higher risk of adult-onset asthma and diabetes among individuals with prior mental disorders.
- Estimated the costs of brain disorders in Spain (2010) at 84 billion euros, almost 8% of the country's gross domestic product (GDP).
- Identified the best performing patient-reported outcome measures for heart failure, bladder cancer and prostate cancer after systematic evaluations with EMPRO, a standardized assessment tool.
- Shown that combined treatment of LABAs and ICs (compared to ICs alone) is not associated with a higher risk of serious adverse events in adults and children with asthma.



Investigators of the Occupational and Environment Epidemiology group and others have achieved the following:

- Completed the recruitment to the Multicase-control population-based study on high incidence tumours in Spain (MCC-Spain) with 10,137 among patients and controls enrolled.
- Described an association between night shift work and prostate cancer particularly for tumors with worse prognosis in the MCC-Spain subsample of patients with prostate cancer.
- Been leading the exposome research in EU, coordinating the Helix project , which studies the exposome in children, and leading several work packages in the Exposomics project, which focuses in air and water contaminants in critical periods of life.

Investigators of the Respiratory Health, Air Pollution & Childhood Development group and others have achieved the following:

- Recruited almost 3000 children from 39 Barcelona schools for the Breathe project. Children have undergone a neuropsychological assessment in 4 occasions. MRI testing has been performed in a subsample of 285 participants.

- Identified that children attending schools with higher traffic-related air pollution had a smaller improvement in cognitive development.
- Described a beneficial association has been observed between exposure to green space and cognitive development among schoolchildren that was partly mediated by reduction in exposure to air pollution.

Investigators of the Social Epidemiology & Occupational Health group and others have achieved the following:

- Established the validity of the Work Role Functioning Questionnaire (WRFQ), an instrument to measure self-perceived difficulties in meeting job demands in active workers.
- Completed the Central American Working Conditions Survey, providing nationally representative, comparable data on work and health status of workers in the formal and informal economy in six Central American countries.
- Shown that unstable labor market trajectories are associated with early retirement due to permanent disability, based on analyses of the Spanish Continuous Working Life Sample.
- Established that psychological factors play an important role in the development

and persistence of musculoskeletal pain (CUPID study).

► Technological & Translational Objectives

- Two patents related to the prediction of cardiovascular and thromboembolic diseases risk have been transferred to a biotechnology company.
- The CASSANDRA model, an open access web application to assess the impact of different preventive interventions at the population level was applied to addressing the impact of different cardiovascular preventive interventions for Catalonia (www.redheracles.net/cassandra/es/).
- New risk functions were developed to estimate coronary, cerebrovascular and global cardiovascular risks in Spain (FRESCO function).
- A valid standardized and adjusted benchmarking tool was developed to allow European hospitals to monitor their outcomes in key procedures used in coronary artery disease (www.eurhobop.eu/).
- Technical reports on request for the National Health Services and the Agency for Quality and Evaluation on Healthcare of Catalonia (AQuAS) were drawn up (aquas.gencat.cat).
- National research to study variability in health services research and health outcomes (from early diagnosis to treatment and follow-up for disease free survival) has been set up .
- Two new web pages have been created with information of the active health services research projects (www.camiss.info; www.redissec.com).
- BiblioPRO, the online library of reference for patient reported outcomes (PRO) in Spanish, has reached 3500 monthly visits and 2431 new users in 2014 (www.bibliopro.org).
- A platform to study working conditions and major health risks for exposed workers was developed from databases of the Social Security workforce based on the “Continuous Work History Sample”.
- A new international consortium (INTEVAL), with 16 research centers from 9 European countries is led by EPISAP researchers to implement a multinational intervention to minimize occupational incapacity from musculoskeletal disorders.
- EPISAP researchers have continued participating in national and international expert committees, such as WHO, European Research Council, Expert Boards, European Medicines Agency (EMA), Generalitat de Catalunya, and the Spanish Ministry of Health.



Educational Objectives

In 2014 investigators of the EPISAP have achieved the following:

- 18 doctoral theses which were successfully defended.
- Led a number of formal educational education activities:
 - Postgraduate programs: Master's in Public Health (120 ECTS) with 2 specialties: research and professional; Master's Degree in Occupational Health and Safety, in collaboration with the Universitat Politècnica de Barcelona - BarcelonaTech (UPC) and University of Barcelona (UB); and the postgraduate Diploma in Public Health (30 ECTS).
 - Graduate courses: The Health System; Epidemiology; Community Health; Health Management; Preventive Medicine and Public Health (Medicine), among many others.
 - Other programs: The EPISAP researchers have continued actively participating in the Medical Specialties Residency Program, as part of the educational units for the medical specialties of Preventive Medicine & Public Health, and

Occupational Medicine. Collaboration with other programmes includes: European Educational Programme in Epidemiology (EEPE), Master in Nursing Sciences, Master in Cardiology Nursing, Bachelor's degree in Biology, Biotechnology and Biochemistry, among many others.

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Cardiovascular Epidemiology and Genetics

RESEARCH GROUP



Coordinator

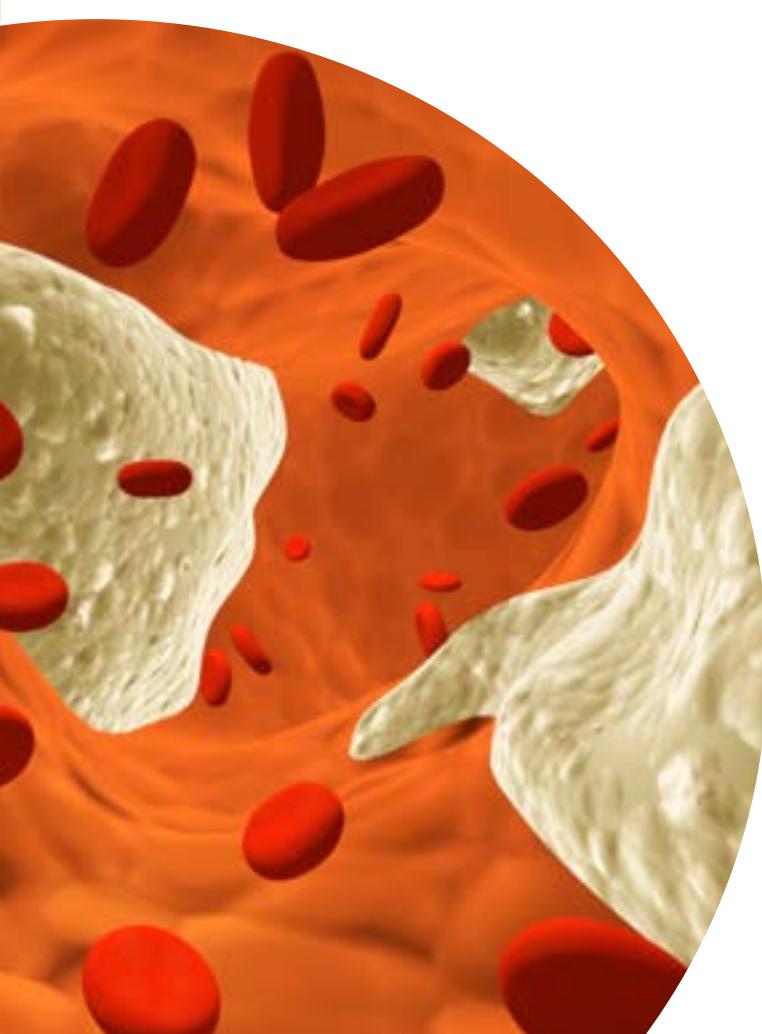
Roberto Elosua Llanos

Members

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Albert Clarà Velasco
Sandra Farré Anton
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Maria Grau Magaña
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Jaume Marrugat de la Iglesia
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Irene Roman Degano
Sigrid Segura Roca
José Felipe Solsona Duran

Isaac Subirana Cachinero
Susanna Tello Rovira
Joan Salvador Vila Domènech
Maria del Mar Vila Muñoz





The group is focused on the study of the epidemiology and the genetic basis of cardiovascular disorders and their risk factors. The research team involves a multidisciplinary group of epidemiologists, biologists, biochemists, cardiologists and biostatisticians who work together to tackle these topics. The best-known study is the REGICOR project (REgistre Gironí del COR). The group is currently working on research into cardiovascular protective factors in the South of Europe, mainly physical activity and the Mediterranean diet, to shed light on the Mediterranean paradox, defined by a high prevalence of risk factors and a low incidence of cardiovascular disease.



Main Publications 2014

- Bayés-Genís A, de Antonio M, Vila JS, Peñafiel J, Galán A, Barallat J, Zamora E, Urrutia A, Lupón J. Head-to-head comparison of two myocardial fibrosis biomarkers for long-term heart failure risk stratification: ST2 vs. Galectin-3. *J Am Coll Cardiol* 2014;63(2):158-166. IF 15.343. Q1.
- Fernández-Berges DJ, Consuegra-Sánchez L, Peñafiel J, Cabrera de León A, Vila JS, Felix-Redondo FJ, Segura-Fragoso A, Lapetra J, Guembe MJ, Vega T, Fitó M, Elosua R, Diaz O, Marrugat J. Perfil metabólico-inflamatorio en la transición obesidad, síndrome metabólico y diabetes *mellitus* en población mediterránea. Estudio DARIOS Inflamatorio. *Rev Esp Cardiol* 2014;67(8):624-631. IF 3.342. Q2.
- Foraster M, Künzli N, Aguilera I, Rivera M, Agis D, Vila JS, Bouso L, Deltell A, Marrugat J, Ramos R, Sunyer J, Elosua R, Basagaña X. High Blood Pressure and Long-Term Exposure to Indoor Noise and Air Pollution from Road Traffic. *Environ Health Perspect* 2014;122(11):1193-1200. IF 7.029. Q1.
- Garcia C, Molina L, Subirana I, Sala J, Bruguera J, Arós F, Fiol M, Serra J, Marrugat J, Elosua R. Diferencias en función del sexo en las características clínicas, tratamiento y mortalidad a 28 días y 7 años de un primer infarto agudo de miocardio. Estudio RESCATE II. *Rev Esp Cardiol* 2014;67(1):28-35. IF 3.342. Q2.
- Grau M, Subirana I, Vila JS, Elosua R, Ramos R, Sala J, Dégano IR, Tresserras R, Bielsa O, Marrugat J. Validation of a population coronary disease predictive system: the CASSANDRA model. *J Epidemiol Community Health* 2014;68(11):1012-1019. IF 3.294. Q1.
- Martí H, Gubelmann C, Aeschbacher S, Alves L, Bobak M, Bongard V, Clays E, de Gaetano G, Di Castelnuevo A, Elosua R, Ferrieres J, Guessous I, Igland J, Jorgensen T, Nikitin Y, O'Doherty MG, Palmieri L, Ramos R, Simons J, Sulo G, Vanuzzo D, Vila JS, Barros H, Borglykke A, Conen D, de Bacquer D, Donfrancesco C, Gaspoz JM, Giampaoli S, Giles GG, Iacoviello L, Kee F, Kubanova R, Malyutina S, Marrugat J, Prescott J, Ruidavets JB, Scragg R, Simons LA, Tamosiunas A, Tell GS, Vollenweider P, Marqués-Vidal P. Seasonality of cardiovascular risk factors: an analysis including over 230,000 participants in 15 countries. *Heart* 2014;100(19):1517-1523. IF 6.023. Q1.

- Marrugat J, Subirana I, Ramos R, Vila JS, Marín-Ibáñez A, Guembe MJ, Rigo F, Tormo MJ, Moreno-Iribas C, Cabré JJ, Segura A, Baena-Diez JM, Gómez de la Cámara A, Lapetra J, Grau M, Quesada M, Medrano MJ, González-Diego P, Frontera-Juan G, Gavrila D, Ardanaz E, Basora J, García JM, García-Lareo M, Gutiérrez JA, Mayoral E, Sala J, d'Agostino R, Elosua R, on behalf of the FRESCO Investigators. Derivation and validation of a set of 10-year cardiovascular risk predictive functions in Spain: The FRESCO Study. *Prev Med* 2014;61C:66-74. IF 2.932. Q1.
- Soria JM, Morange PE, Vila JS, Souto JC, Moyano M, Tregouet DA, Mateo J, Saut N, Salas E, Elosua R. Multilocus genetic risk scores for venous thromboembolism risk assessment. *J Am Heart Assoc* 2014;3(5):e001060. IF 2.882. Q2.
- Stitziel NO, Won HH, Morrison AC, Peloso GM, Do R, Lange LA, Fontanillas P, Gupta N, Duga S, Goel A, Farrall M, Path FR, Saleheen D, Ferrario P, König IR, Asselta R, Merlini PA, Marziliano N, Notarangelo MF, Schick U, Auer P, Assimes TL, Reilly MP, Wilensky RL, Rader DJ, Hovingh GK, Meitinger T, Kessler T, Kastrati A, Laugwitz KL, Siscovick D, Rotter JL, Hazen SL, Tracy R,

Cresci S, Spertus J, Jackson RD, Schwartz SM, Natarajan P, Crosby J, Muzny D, Ballantyne CM, Rich SS, O'Donnell CJ, Abecassis G, Sunyaev S, Nickerson DA, Buring JE, Ridker PM, Chasman DI, Austin E, Ye Z, Kullo IJ, Weeke PE, Shaffer CM, Bastarache LA, Denny JC, Roden DM, Palmer C, Deloukas P, Lin D, Tang ZZ, Erdmann J, Schunkert H, Danesh J, Marrugat J, Elosua R, Ardissino D, McPherson R, Watkins H, Reiner AP, Wilson JG, Altshuler D, Gibbs RA, Lander ES, Boerwinkle E, Gabriel S, Kathiresan S, The Myocardial Infarction Genetics Consortium Investigators. Inactivating Mutations in NPC1L1 and Protection from Coronary Heart Disease. *New Engl J Med* 2014;371(22):2072-2082. IF 54.42. Q1.

- Woo D, Falcone GJ, Devan WJ, Brown WM, Biffi A, Howard TD, Anderson CD, Brouwers HB, Valant V, Battey TW, Radmanesh F, Raffeld MR, Baedorf-Kassis S, Deka R, Woo JG, Martin LJ, Haverbusch M, Moomaw CJ, Sun G, Broderick JP, Flaherty ML, Martini SR, Kleindorfer DO, Kissela B, Comeau ME, Jagiella JM, Schmidt H, Freudenberger P, Pichler A, Enzinger C, Hansen BM, Norrving B, Jiménez-Conde J, Giralt E, Elosua R, Cuadrado E, Soriano C, Roquer



J, Kraft P, Ayres A, Schwab K, McCauley JL, Pera J, Urbanik A, Rost NS, Goldstein JN, Viswanathan A, Stögerer EM, Tirschwell DL, Selim M, Brown DL, Silliman SL, Worrall BB, Meschia JF, Kidwell CS, Montaner J, Fernández-Cadenas I, Delgado P, Malik R, Dichgans M, Greenberg SM, Rothwell PM, Lindgren A, Slowik A, Schmidt R, Langefeld CD, Rosand J, on behalf of the International Stroke Genetics Consortium. Meta-Analysis of Genome-Wide Association Studies Identifies 1q22 as a Susceptibility Locus for Intracerebral Hemorrhage. *Am J Hum Genet* 2014;94(4):511-521. IF 10.987. Q1.

Ongoing Research Projects 2014

- Papel del genotipo de riesgo coronario, y de los niveles basales y cambios a 10 años de 16 biomarcadores bioquímicos, en la expresión pre-clínica de la arteriosclerosis
 - > Fondo de Investigación Sanitaria. ISCIII (PI11/01801)
 - > Principal researcher: Marrugat de la Iglesia, Jaume
- EUROpean treatment & Reduction of Acute Coronary Syndromes cost analysis
 - > European Comission (20121207)
 - > Principal researcher: Marrugat de la Iglesia, Jaume

- Papel de la metilación del ADN en la relación de los estilos de vida con los factores de riesgo vascular y la enfermedad cardiovascular subclínica
 - > Fondo de Investigación Sanitaria. ISCIII (PI12/00232)
 - > Principal researcher: Elosua Llanos, Roberto
- Burden of cardiovascular diseases associated with chronic inflammatory conditions: a population approach.
 - > Fondo de Investigación Sanitaria. ISCIII (CP12/03287)
 - > Principal researcher: Grau Magaña, María

Participation in Research Networks

- Heracles: Determinants genètics i ambientals de la disfunció vascular en la hipertensió i en la cardiopatia isquèmica
 - > Fondo de Investigación Sanitaria-ISCIII. Subprograma RETICS (RDo6/0009/0000)
 - > Coordinator: Marrugat de la Iglesia, Jaume
- Red Cardiovascular
 - > Fondo de Investigación Sanitaria-ISCIII. Subprograma RETICS (RD12/0042/0061)
 - > Principal researcher: Marrugat de la Iglesia, Jaume
- Red Cardiovascular
 - > Fondo de Investigación Sanitaria-ISCIII. Subprograma RETICS (RD12/0042/0013)
 - > Principal researcher: Elosua Llanos, Roberto

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Consolidat Registre Gironí del Cor - REGICOR. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 1195)
 - > Principal researcher: Marrugat de la Iglesia, Jaume

Other

- Roberto Elosua: Corresponding Academician of the Reial Acadèmia de Medicina de Catalunya (April 2014).
- First Prize awarded for the most cited article in the medium term by *Revista Española de Cardiología* 2014: Cardiovascular Risk Factors in Spain in the First Decade of the 21st Century, a Pooled Analysis With Individual Data From 11 Population-Based Studies: the DARIOS Study.

Cardiovascular Risk and Nutrition

RESEARCH GROUP



Coordinator

Montserrat Fitó Colomer

Members

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Juan José Chillarón Jordán
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Marta Farràs Mañé
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Sílvia Martín Jaurena
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Dolors Muns Cornellas
Daniel Muñoz Aguayo
Helmut Schröder
Montserrat Villatoro Moreno
M. Dolores Zomeño Fajardo





The Mediterranean diet, its foods and the interaction of nutrients, has healthy effects on morbidity and mortality related to cardiovascular diseases that have been widely described and scientifically proven. In this context, the main objective of our research is to determine the effect of diet on cardiovascular risk factors, diabetes and cardiovascular diseases, as well as to establish the cellular and molecular mechanisms that contribute to these beneficial effects. To achieve these goals, we are working at present on the following research lines: (1) Nutrition studies, (2) Molecular and cellular mechanisms related with risk and protective factors for diabetes and cardiovascular disease, (3) Childhood obesity and (4) Nutritional epidemiology.



Main Publications 2014

- Fitó M, Estruch R, Salas-Salvadó J, Martínez-González MA, Arós F, Vila JS, Corella D, Diaz O, Sáez G, de la Torre R, Mitjavila MT, Muñoz MA, Lamuela RM, Ruiz-Gutiérrez V, Fiol M, Gómez-Gracia E, Lapetra J, Ros E, Serra-Majem L, Covas MI, on behalf of the PREDIMED Study Investigators. Effect of the Mediterranean diet on heart failure biomarkers: a randomized sample from the PREDIMED trial. *Eur J Heart Failure* 2014;16(5):543-550. IF 6.577. Q1.
- Flores-Mateo G, Elosua R, Rodríguez-Blanco T, Basora J, Bulló M, Salas-Salvadó J, Martínez-González MA, Estruch R, Corella D, Fitó M, Fiol M, Arós F, Gómez-Gracia E, Subirana I, Lapetra J, Ruiz-Gutiérrez V, Saez GT, Covas MI, for the PREDIMED Study Investigators. Oxidative stress is associated with an increased antioxidant defense in elderly subjects: a multilevel approach. *PLoS ONE* 2014;9(9):e105881. IF 3.534. Q1.
- Funtikova A, Benítez A, Gómez S, Fitó M, Elosua R, Schröder H. Mediterranean diet impact on changes in abdominal fat and 10-year incidence of abdominal obesity in a Spanish population. *Br J Nutrition* 2014;111(8):1481-1487. IF 3.342. Q2.
- Goday A, Benaiges D, Parri A, Ramon-Moros JM, Flores JA, Pedro-Botet J, on behalf of the Obemar Group. Can bariatric surgery improve cardiovascular risk factors in the metabolically healthy but morbidly obese patient? *Surg Obes Relat Dis* 2014;10(5):871-876. IF 4.942. Q1.
- Gómez-Pérez MA, Vila JS, Elosua R, Molina L, Bruguera J, Sala J, Masiá R, Covas MI, Marrugat J, Fitó M. Relationship of lipid oxidation with subclinical atherosclerosis and 10-year coronary events in general population. *Atherosclerosis* 2014;232(1):134-140. IF 3.971. Q1
- Hernández A, Fernández-Castillejo S, Farràs M, Catalan U, Subirana I, Montes R, Solà R, Muñoz D, Gelabert-Gorgues A, Diaz O, Nyyssönen K, Zunft HJF, de la Torre R, Martín-Peláez S, Pedret A, Remaley AT, Covas MI, Fitó M. Olive Oil Polyphenols Enhance High-Density Lipoprotein Function in Humans: A Randomized Controlled Trial. *Arterioscler Thromb Vasc Biol* 2014;34(9):2115-2119. IF 5.533. Q1.
- Mas A, Benaiges D, Flores JA, Pedro-Botet J, Ramon-Moros JM, Parri A, Villatoro M, Chillarón JJ, Pera M, Grande L, Goday A, on behalf of the Obemar Group. Impact of Different Criteria on Type 2 Diabetes Remission Rate After Bariatric Surgery. *Obes Surg* 2014;24(11):1881-1887. IF 3.739. Q1.

- Schröder H, Ramos R, Baena-Díez JM, Méndez MA, Canal DJ, Fitó M, Sala J, Elosua R. Determinants of the transition from a cardiometabolic normal to abnormal overweight/obese phenotype in a Spanish population. *Eur J Nutr* 2014;53(6):1345-1353. IF 3.84. Q1.
- Schröder H, Ribas L, Koebnick C, Funtikova A, Gómez S, Fitó M, Pérez-Rodrigo C, Serra-Majem L. Prevalence of abdominal obesity in Spanish children and adolescents. Do we need waist circumference measurements in pediatric practice? *PLoS ONE* 2014;9(1):e87549. IF 3.534. Q1.

Ongoing Research Projects 2014

- Metabolic Fate of Olive Oil Phenolic compounds and/or complementary phenols in humans: Nutrigenomic Effect. The MEFOP Project
 - > Ministerio de Economía y Competitividad (AGL2012-40144-Co3-01)
 - > Principal researcher: Fitó Colomer, Montserrat (since September 2013)
- Efectos de una intervención de estilo de vida en la prevención de la obesidad infantil: un modelo de base comunitaria (Estudio POIBC)
 - > Fondo de Investigación Sanitaria. ISCIII (PI11/01900)
 - > Principal researcher: Schröder, Helmut

- PREDIMED-PLUS: Effect of a hypocaloric Mediterranean diet and physical activity promotion on the primary prevention of cardiovascular disease. Pilot study on intermediate markers
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/00233)
 - > Principal researcher: Goday Arno, Albert
- Contract in the frame of FEDER INNTERCONECTA “New processes of industry from Andalusia to elaborate new products with high biological properties on human health (NUTRAOLEUM)”
 - > Acer Campestres, SL
 - > Principal researcher: Fitó Colomer, Montserrat
- Molecular mechanisms of the Mediterranean diet on the improvement on the HDL functionality
 - > Fondo de Investigación Sanitaria (PI11/01647)
 - > Principal researcher: Cladellas Capdevila, Mercè (Montserrat Fitó Colomer: principal researcher until 2013 and collaborator until 2014)

Participation in Research Networks

- CIBEROBN: Fisiopatología de la obesidad y nutrición
 - > Fondo de Investigación Sanitaria. ISCIII (CBo6/03/0028)
 - > Principal researcher: Fitó Colomer, Montserrat
- CIBERESP: Epidemiología y salud pública
 - > Fondo de Investigación Sanitaria. ISCIII (CBo6/02/0029)
 - > Principal researcher: Schröder, Helmut



- Red Cardiovascular

- > Fondo de Investigación Sanitaria. ISCIII.
Subprograma RETICS (RD12/0042/0061)
- > Principal researcher: Marrugat de la Iglesia, Jaume

- RETICS de Biobancos

- > Fondo de Investigación Sanitaria. ISCIII.
Subprograma RETICS (RD09/0076/00036)
- > Principal researcher: Torà Barnadas, Montserrat

Group's Recognition

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de recerca consolidat Registre Gironí del Cor-REGICOR. 2014
- > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 240)
- > Principal researcher: Marrugat de la Iglesia, Jaume

Clinical Trials

- Phase III studies: 1 (2013/5444)

Other

► Patents

- Amides of fatty acid for prevention and/or treatment of esteatohepatitis.
- > Names of inventors: Rodríguez, Fernando; Pavón, Francisco Javier; Serrano, Antonia; Decara, Juan Manuel; Joglar, Jesús; Clapés, Pedro; de la Torre, Rafael; Farré, Magí; Covas, María Isabel; Fitó, Montserrat; Cotrim, Bruno.
- > Patent office: OEPM Madrid
- > Application number: P201431739
- > Date of registration: 24/11/2014
- > Applicant's name and entity/organisation exploiting the patent: Fundació IMIM

► Awards

- Olive oil culture Award prize for the CARIN group awarded by Fira de les Garrigues Board at the Fira de l'Oli Qualitat Verge Extra (Les Borges Blanques, Spain) for the promotion of the values associated with extra virgin olive oil
- José Luis Rodríguez Miñón 2013-2014 prize for the Senior Clinical Research awarded by Sociedad Española de Diabetes.
- > Goday Arno, Albert

Clinical and Molecular Epidemiology of Cancer

RESEARCH GROUP



Coordinator

Miquel Porta Serra

Members

Immaculada Collet Diví

Magda Gasull Panadès

Tomàs López Jiménez

Yolanda Rovira Pons

Cancer is a complex set of processes that result from the interaction of genetic, clinical and environmental factors, with “environmental” including the physical environment, as well as the public health, cultural, economic and political environments. Thus, integrative studies on the causes of cancer are a natural meeting point between molecular biology and epidemiology.

Our aim is to achieve an optimal integration of professional cultures, scientific knowledge, methodologies and techniques from public health, clinical medicine and the biological sciences. As a team we have worked across several disciplines for over a decade, and are one of Spain's pioneering and leading groups in clinical and molecular epidemiology.





Main Publications 2014

- Aylward LL, Green E, Porta M, Toms LM, Hond ED, Schulze C, Gasull M, Pumarega JA, Conrad A, Kolossa-Gehring M, Schoeters G, Mueller JF. Population variation in biomonitoring data for persistent organic pollutants (POPs): An examination of multiple population-based datasets for application to Australian pooled biomonitoring data. *Environ Int* 2014;68C:127-138. IF 5.664. Q1.
- Begueria A, Larrea C, Muñoz A, Zafra E, Mascaró-Pons J, Porta M. Social discourses concerning pollution and contamination in Spain: an analysis of online comments by digital press readers. *Contributions to Science* 2014;10:35-47.
- Lee DH, Porta M, Jacobs DR, Vandenberg LN. Chlorinated Persistent Organic Pollutants, Obesity, and Type 2 Diabetes. *Endocr Rev* 2014;35(4):557-601. IF 19.358. Q1.
- López T, Pumarega JA, Pollack AZ, Lee DH, Richiardi L, Jacobs DR, Schisterman EF, Porta M. Adjusting serum concentrations of organochlorine compounds by lipids and symptoms: A causal framework for the association with K-ras mutations in pancreatic cancer. *Chemosphere* 2014;114:219-225. IF 3.499. Q1.
- Muncke J, Myers JP, Scheringer M, Porta M. Food packaging and migration of food contact materials: will epidemiologists rise to the neotoxic challenge? *J Epidemiol Community Health* 2014;68(7):592-594. IF 3.294. Q1.
- Porta M, Pumarega JA, Gasull M, López T. Contamination from endocrine disrupters of the general population at low and high concentrations. In: Litwack J, eds. *Vitamines and Hormones* 2014: 167-192.
- Vineis P, Stringhini S, Porta M. The environmental roots of non-communicable diseases (NCDs) and the epigenetic impacts of globalization. *Environ Res* 2014;133:424-430. IF 3.951. Q1.
- Wolpin BM, Rizatto C, Kraft P, Kooperberg C, Petersen G, Wang Z, Arslan AA, Beane Freeman LE, Bracci PM, Buring JE, Canzian F, Duell EJ, Gallinger S, Giles GG, Goodman GE, Goodman PJ, Jacobs EJ, Kamineni A, Klein AP, Kolonel LN, Kulke MH, Li D, Malats N, Olson SH, Risch HA, Sesso HD, Visvanathan K, White E, Zheng W, Abnet CC, Albanes D, Andreotti G, Austin MA, Barfield R, Basso D, Berndt SI, Boutron-Ruault MC, Brotzman M, Büchler M, Bueno-de-Mesquita HB, Bugert P, Burdette L, Campa D, Caporaso NE, Capurso G, Chung CC, Cotterchio M, Costello E, Elena JW, Funel N, Gaziano JM, Giese NA, Giovannucci EL, Goggins M, Gorman M, Gross MD, Haiman CA, Hassan M, Helzlsouer KJ, Henderson BE,

Holly EA, Hu N, Hunter DJ, Innocenti F, Jenab M, Kaaks R, Key TJ, Khaw KT, Klein E, Kogevinas M, Krogh V, Kupcinskas J, Kurtz RC, LaCroix A, Landi MT, Landi S, Le Marchand L, Mambrini A, Mannisto S, Milne RL, Nakamura Y, Oberg AL, Owzar K, Patel AV, Peeters PH, Peters U, Pezzilli R, Piepoli A, Porta M, Real FX, Riboli E, Rothman N, Scarpa A, Shu XO, Silverman D, Soucek P, Sund M, Talar-Wojnarowska R, Taylor PR, Theodoropoulos GE, Thorquist M, Tjoneeland A, Tobias GS, Trichopoulos D, Vodicka P, Wactawski-Wende J, Wentzensen N, Wu C, Yu H, Yu K, Zeleniuch-Jacquotte A, Hoover RN, Hartge P, Fuchs CS, Chanock SJ, Stolzenberg-Solomon RZ, Amundadottir L. Genome-wide association study identifies multiple susceptibility loci for pancreatic cancer. *Nat Genet* 2014;46:994-1000. IF 29.648. Q1.

- Concentraciones sanguíneas de compuestos organoclorados, estilo de vida y riesgo de cáncer de páncreas en la cohorte EPIC
 - > Fondo de Investigación Sanitaria. ISCIII (Pl13/00020)
 - > Principal researcher: Porta Serra, Miquel

Participation in Research Networks

- CIBERESP: Epidemiología y salud pública
 - > Fondo de Investigación Sanitaria. ISCIII (CBo6/o2/0034)
 - > Principal researcher: Porta Serra, Miquel

Ongoing Research Projects 2014

- Plasma concentrations of organochlorine compounds and lifestyle factors pancreatic cancer risk within the EPIC cohort
 - > Fundació La Marató de TV3 (20132910)
 - > Principal researcher: Porta Serra, Miquel

Drug Abuse Epidemiology

RESEARCH GROUP



Coordinator

Antònia Domingo Salvany

Members

Esther Colell Ortega

Maria Belén Germade Riveiro

Albert Sánchez Niubó

The group's objectives are to contribute to knowledge about the extent and impact of drug abuse, including aspects related to violence and illegal drug market activities, and to assist in the implementation of suitable health care initiatives.

The group carries out studies to assess the scale of drug consumption among the population, as well as contributing to the study of its consequences and the suitability of treatments used.



Main Publications 2014

- Arribas-Ibar E, Sánchez-Niubó A, Majo X, Domingo-Salvany A, Brugal MT. Coverage of overdose prevention programs for opiate users and injectors: a cross-sectional study. *Harm Reduction J* 2014;11(1):33. IF 1.594. Q2.
- Colell E, Bell S, Britton A. The relationship between labour market categories and alcohol use trajectories in midlife. *J Epidemiol Community Health* 2014; 68(11):1050-1056. IF 3.294. Q1.
- Colell E, Sánchez-Niubó A, Benavides FG, Delclòs GL, Domingo-Salvany A. Work-related stress factors associated with problem drinking: A study of the Spanish working population. *Am J Ind Med* 2014;57(7):837-846. IF 1.59. Q3.
- Colell E, Sánchez-Niubó A, Domingo-Salvany A, Delclòs GL, Benavides FG. Prevalencia de consumo de hipnosedantes en población ocupada y factores de estrés laboral asociados. *Gac Sanit* 2014;28(5):369-375. IF 1.25. Q3.
- Mestre J, Domingo-Salvany A, Martín-Santos R, Torrens M. Dual Diagnosis Screening Interview to Identify Psychiatric Comorbidity in Substance Users: Development and Validation of a Brief Instrument. *Eur Addict Res* 2014;20(1):41-48. IF 2.073. Q2.

- Pulido J, Molist G, Domingo-Salvany A, Brugal MT, Sánchez-Niubó A, Barrio G, de la Fuente L, Itinere Working Group. Predictors of change in cocaine use in a street-recruited cohort of young cocaine users. *Addiction* 2014;109(6):954-964. IF 4.596. Q1.

Ongoing Research Projects 2014

- Análisis de la encuesta a población general EDADES bajo una perspectiva de salud laboral
 - > Ministerio de Sanidad y Política Social (2011lo73)
 - > Principal researcher: Domingo Salvany, Antònia
- Desarrollo de herramientas metodológicas para la evaluación de programas y políticas en el campo de las drogodependencias
 - > Fondo de Investigación Sanitaria. ISCIII (Pl11/01358)
 - > Principal researcher: Domingo Salvany, Antònia
- Adaptación de los instrumentos de diagnóstico de patología dual a los criterios DSM-5
 - > Fondo de Investigación Sanitaria. ISCIII (Pl14/00178)
 - > Principal researcher: Domingo Salvany, Antònia

Participation in Research Networks

- Red de Trastornos Adictivos
 - > Fondo de Investigación Sanitaria. ISCIII (RD12/0028/0018)
 - > Principal researcher: Brugal Puig, Teresa

Epidemiology and Evaluation

RESEARCH GROUP



Coordinator

Maria Sala Serra

Members

Andrea Buron Pust
Miriam Caracuel Garcia
Xavier Castells Oliveres
Pietro Chiarello
Mercè Comas Serrano
Francesc Cots Reguant
Laia Domingo Torrell
Priscila Giraldo Matamoros
Cristina Hernández Rodríguez
Francesc Macià Guilà
Esther Martínez Amor
Marta Riu Camps
Roser Terradas Robledo
Isabel Torà Rocamora

This is a group with multidisciplinary training (epidemiology, health economics, statistics and nursing) which has undertaken research activity in the field of health services research (HSR), specifically in the evaluation of the effectiveness and costs of health services and interventions; the evaluation of the needs and use of health services; and the development of instruments for HSR. Current research lines are centered mainly on the evaluation of the health care process in cancer patients and the process's impact on survival.



Main Publications 2014

- Allué N, Chiarello P, Bernal-Delgado E, Castells X, Giraldo P, Martínez N, Sarsanedas E, Cots F. Impacto económico de los eventos adversos en los hospitales españoles a partir del Conjunto Mínimo Básico de Datos. *Gac Sanit* 2014;28(1):48-54. IF 1.25. Q3.
- Blanch J, Sala M, Ibáñez J, Domingo L, Fernández B, Otegi A, Barata T, Zubizarreta R, Ferrer J, Castells X, Rué M, Salas D, for the INCA Study Group. Impact of risk factors on different interval cancer subtypes in a population-based breast cancer screening programme. *PLoS ONE* 2014;9(10):e110207. IF 3.534. Q1.
- Collado A, Gómez E, Coscolla R, Sunyol R, Solé E, Rivera J, Altarriba E, Carbonell J, Castells X. Work, family and social environment in patients with Fibromyalgia in Spain: an epidemiological study: EPIFFAC study. *BMC Health Serv Res* 2014;14(1):513. IF 1.659. Q3.
- Comas M, Arrospide A, Mar J, Sala M, Vilaprinyó E, Hernández C, Cots F, Martínez J, Castells X. Budget impact analysis of switching to digital mammography in a population-based breast cancer screening program: a discrete event simulation model. *PLoS ONE* 2014;9(5):e97459. IF 3.534. Q1.
- Domingo L, Salas D, Zubizarreta R, Baré M, Sarriugarte G, Barata T, Ibáñez J, Blanch J, Puig-Vives M, Fernández AB, Castells X, Sala M. Tumor phenotype and breast density in distinct categories of interval cancer: results of population-based mammography screening in Spain. *Breast Cancer Res* 2014;16(1):R3. IF 5.881. Q1.
- Rojo F, Domingo L, Sala M, Zazo S, Chamizo C, Menéndez S, Arpí O, Corominas JM, Bragado R, Servitja S, Tusquets I, Nonell L, Macià F, Martínez J, Rovira A, Albanell J, Castells X. Gene expression profiling in true interval breast cancer reveals overactivation of mTOR signaling pathway. *Cancer Epidemiol Biomarkers Prev* 2014;23(2):288-299. IF 4.324. Q1.
- Vilapriño E, Forné C, Carles M, Sala M, Pla R, Castells X, Domingo L, Rué M, Interval Cancer (INCA) Study Group. Cost-effectiveness and harm-benefit analyses of risk-based screening strategies for breast cancer. *PLoS ONE* 2014;9(2):e86858. IF 3.534. Q1.



Ongoing Research Projects 2014

- Effect of interval cancer and screening process on survival and disease-free interval in breast cancer
 - > Fondo de Investigación Sanitaria. ISCIII (PI12/00387)
 - > Principal researcher: Sala Serra, Maria
- Determinants, evolution and biological characteristics of breast cancer detected in a cohort of screened women
 - > Fondo de Investigación Sanitaria. ISCIII (PI11/01296)
 - > Principal researcher: Castells Oliveres, Xavier
- Assessing the cost attributable to adverse events in hospitals of the Spanish Health System. CoNoCE Project (Costes de la No Calidad en España)
 - > Fondo de Investigación Sanitaria. ISCIII (PI11/01302)
 - > Principal researcher: Cots Reguant, Francesc
- Law and Health: Strategies for patient safety
 - > Fundación Mapfre Medicina
 - > Principal researcher: Giraldo Matamoros, Priscila
- Communication and apology after a medical error
 - > Fundación Víctor Grífols i Lucas
 - > Principal researcher: Giraldo Matamoros, Priscila

Participation in Research Networks

- Research network on health services in chronical diseases – REDISSEC (Red de Investigación en Servicios de Salud en Enfermedades Crónicas)
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS (8430RD12/0001/0015)
 - > Principal researcher: Sala Serra, Maria

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Servei d'avaluació i epidemiología clínica. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 427)
 - > Principal researcher: Castells Oliveres, Xavier

Other

► Workshops

- Coordination and organization of the workshop: II Annual Scientific Conference REDISSEC. 2014 edition. Madrid, November, 26th of 2014, Escuela Nacional de Salud.
- Coordination and organization of the workshop XVII Conference on Breast

Cancer: Improving the quality of early detection program for breast cancer in Catalonia. Barcelona, 28 March 2014, Hospital del Mar, Parc de Salut Mar.

► Webs

- Web to exchange information on screening research:
www.investigacioncribado.org - DB with restricted access for researchers which are members of the screening program network, participants of the RAFP project (FIS: PI06/1230, PI09/90251) and RAFP Digital (FIS: PI06/90092), centralizing the process of construction, quality control and validation database projects.
 > Authors: Xavier Castells and Maria Sala
- Web RECH (Red Española de Costes Hospitalarios) with registration of intellectual property:
<http://www.rechosp.org/faces/jsf/index.jsp>
- DB of consultation for research of hospital costs.
 > Author: Francesc Cots

Health Services

RESEARCH GROUP



Coordinator

Jordi Alonso Caballero

Members

Alfonso Antón López
Mónica Marcela Ávila Pacheco
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Purificación Barbas López
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Roser Busquets Domingo
Pere Castellví Obiols
Núria Duran Adroher
Montserrat Ferrer Forés
Carlos García Forero
Olatz Garin Boronat
Carme Gasull Planes
María Gimena Hernández Pombo
David John Macfarlane Self
Luisa Áurea Martín Morris
Elena Olariu
Yolanda Pardo Cladellas
Àngels Pont Acuña
Stefanie Schmidt
Gemma Vilagut Saiz



Our group applies advanced epidemiologic and psychometric methods to produce new knowledge about the needs for health care and the outcomes of health services utilization. Our research interests include the common mental disorders and cancer. We have specialized in modern methods for measurement of health-related quality of life, well-being, function and disability. In addition to our research, we undertake a number of educational, mentoring and knowledge transfer activities. Our team is composed of around 20 professionals from different backgrounds such as medicine, statistics, psychology, sociology, and economics. Our group is part of the CIBER in Epidemiology and Public Health and is recognized by AGAUR.



Main Publications 2014

- Alonso J, de Jonge P, Lim CCW, Aguilar-Gaxiola S, Bruffaerts R, Caldas-de-Almeida JM, Liu Z, O'Neill S, Stein DJ, Viana MC, Al-Hamzawi AO, Angermeyer MC, Borges G, Ciutan M, de Girolamo G, Fiestas F, Haro JM, Hu C, Kessler RC, Lépine JP, Levinson D, Nakamura Y, Posada-Villa J, Wojtyniak BJ, Scott KM. Association between mental disorders and subsequent adult onset asthma. *J Psychiatr Res* 2014;59:179-188. IF 4.092. Q1.
- Ávila M, Pardo Y, Castells M, Ferrer F, Boladeras A, Pera J, Prada PJ, Guix B, de Paula B, Hernández H, Pont A, Alonso J, Garin O, Bremner K, Krahn M, Ferrer M. The Multicentric Spanish Group of Clinically Localized Prostate Cancer. Adaptation and validation of the Spanish version of the Patient-Oriented Prostate Utility Scale (PORPUS). *Qual Life Res* 2014;23(9):2481-2487. IF 2.864. Q1.
- Castellví P, Forero CG, Codony M, Vilagut G, Brugulat P, Medina A, Gabilondo A, Mompart A, Colom J, Tresserras R, Ferrer M, Stewart-Brown S, Alonso J. The Spanish version of the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) is valid for use in the general population. *Qual Life Res* 2014;23(3):857-868. IF 2.864. Q1.
- Forero CG, Adroher ND, Stewart-Brown S, Castellví P, Codony M, Vilagut G, Mompart A, Tresseras R, Colom J, Castro JI, Alonso J. Differential item and test functioning methodology indicated that item response bias was not a substantial cause of country differences in mental well-being. *J Clin Epidemiol* 2014;67(12):1364-1374. IF 5.478. Q1.
- Forero CG, Almansa J, Adroher ND, Vermunt JK, Vilagut G, de Graaf R, Haro JM, Alonso J. Partial Likelihood Estimation of IRT Models with Censored Lifetime Data: An Application to Mental Disorders in the ESEMeD Surveys. *Psychometrika* 2014;79(3):470-488. IF 1.961. Q1.
- Garin O, Herdman M, Vilagut G, Ferrer M, Ribera A, Rajmil L, Valderas JM, Guillemin F, Revicki D, Alonso J, on behalf of the EMPRO-HF Group. Assessing health-related quality of life in patients with heart failure: a systematic, standardized comparison of available measures. *Heart Fail Rev* 2014;19(3):359-367. IF 3.991. Q1.
- Hernández G, Ávila M, Pont A, Garin O, Alonso J, Laforest L, Cates C, Ferrer M. Long-acting beta-agonists plus inhaled corticosteroids safety: a systematic review and meta-analysis of non-randomized studies. *Respir Res* 2014;15(1):83-94. IF 3.382. Q2.

- Parés-Badell O, Barbaglia G, Jerinic P, Gustavsson A, Salvador-Carulla L, Alonso J. Cost of disorders of the brain in Spain. PLoS ONE 2014;9(8):e105471-e105480. IF 3.534. Q1.
- Schmidt S, Garin O, Pardo Y, Valderas JM, Alonso J, Rebollo P, Rajmil L, Garcia-Forero C, Ferrer M, the EMPRO Group. Assessing quality of life in patients with prostate cancer: a systematic and standardized comparison of available instruments. Qual Life Res 2014;23(8):2169-2181. IF 2.864. Q1.

Ongoing Research Projects 2014

- EQ-5D: Coordinated study on the new version of EuroQol (EQ-5D) for use in Spain. Subproject 1: Evaluation of the metric benefits of the new EQ-5D-5L and reference standards
 - > Instituto de Salud Carlos III FEDER (PI12/00772)
 - > Principal researcher: Ferrer Forés, Montserrat
- ASTRO-LAB: Assessment of the safety of LABAs in asthma in routine care by combining health-care databases and direct patient follow-up
 - > European Commission (HEALTH-F5-2011-282593)
 - > Principal researcher: Ferrer Forés, Montserrat

- CaPROST1o: Efectividad a largo plazo: Seguimiento hasta los 10 años de la cohorte del Estudio multicéntrico español de cancer de prostata localizado
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/00412)
 - > Principal researcher: Garin Boronat, Olatz
- PROMIS.es Salud Mental: calibración y validación de un instrumento informatizado de evaluación de resultados percibidos por los pacientes para diagnóstico y monitorización en salud
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/00506)
 - > Principal researcher: Vilagut Sanz, Gemma
- Universal: Universidad y Salud Mental. Modelos Predictivos de Ideación y Conducta Suicida en Estudiantes Universitarios Españoles
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/00343)
 - > Principal researcher: Alonso Caballero, Jordi
- BiblioPRO: virtual library of Health-Related Quality of Life instruments
 - > Recercaixa 2010 (ACUP 00158)
 - > Principal researcher: Alonso Caballero, Jordi



Participation in Research Networks

- CIBERESP: Epidemiología y Salud Pública
 - > Fondo de Investigación Sanitaria. ISCIII
(CBo6/02/0046)
 - > Principal researcher: Alonso Caballero,
Jordi

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Serveis Sanitaris. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 748)
 - > Principal researcher: Alonso Caballero, Jordi

Other

- 2014 EUROSPINE Best Full Paper Award (EUROSPINE winning paper 2014).
Winning paper: Pellise F, Vila-Casademunt A, Ferrer M, Domingo-Sabat M, Bagó J, Sánchez Pérez-Grueso FJ, Alanay A, Mannion AF, Acaroglu E, ESSG European Spine Study Group. Impact on health related quality of life of adult spinal deformity (ASD) compared with other chronic conditions. Eur Spine J Eur Spine J 2015;24(1):3-11.



Occupational and Environmental Epidemiology

ASSOCIATED RESEARCH GROUP



Coordinator

Manolis Kogevinas

Members

Lourdes Arjona Camí
Gemma Castaño Vinyals
Anna Delgado Llobet
Anna Espinosa Morano
Laia Font Ribera
Kyriaki Papantoniou
Cristina Villanueva Belmonte





The main research of the group is focused on environmental, occupational and genetic factors related to cancer, respiratory disease and child health. Among the main exposures, the group is focused on radiations (smartphones, UV, ionizing), water pollutants (disinfection by-products in drinking water and swimming pools), air pollution, transport and green spaces in urban areas, hormonal disruption, lifestyle (diet, passive smoking), as well as occupational

studies in cleaning workers and shift work and circadian cycle disruption. In the last few years we have applied new technologies to assess exposure (e.g. smartphones), extensively used new biomedical technologies (exposome, biomarkers, genomics, epigenetics, metabolomics) and implemented complex statistics and bioinformatics methods. The group has an important international reputation and devotes considerable effort to education, dissemination and knowledge transfer. The group's research is funded by grants from FIS, FP7 (EU), and Horizon 2020.



Publications 2014 in Collaboration with IMIM

Dr. Kogevinas published 41 scientific articles in 2014. Below you will find those in collaboration with IMIM.

- Dadvand P, Villanueva CM, Font-Ribera L, Martínez D, Basagaña X, Belmonte-Soler J, Vrijheid M, Grazuleviciene R, Kogevinas M, Nieuwenhuijsen M. Risks and Benefits of Green Spaces for Children: A Cross-Sectional Study of Associations with Sedentary Behavior, Obesity, Asthma, and Allergy. *Environ Health Perspect* 2014;122(12):1329-1335. IF 7.029. Q1.
- González JR, Cáceres A, Esko T, Cuscó I, Puig M, Esnaola M, Reina J, Siroux V, Bouzigon E, Nadif R, Reinmaa E, Milani L, Bustamante M, Jarvis D, Antó JM, Sunyer J, Demenais F, Kogevinas M, Metspalu A, Cáceres M, Pérez-Jurado L. A Common 16p11.2 Inversion Underlies the Joint Susceptibility to Asthma and Obesity. *Am J Hum Genet* 2014;94(3):361-372. IF 10.987. Q1.
- Villanueva CM, Kogevinas M, Cordier S, Templeton MR, Vermeulen R, Nuckols JR, Nieuwenhuijsen M, Levallois P. Assessing Exposure and Health Consequences of Chemicals in Drinking Water: Current State of Knowledge and Research Needs. *Environ Health Perspect* 2014;122(3):213-221. IF 7.029. Q1.

Respiratory Health, Air Pollution, Childhood Development

ASSOCIATED RESEARCH GROUP



Coordinator

Jordi Sunyer Deu

Members

Josep M. Antó Boqué

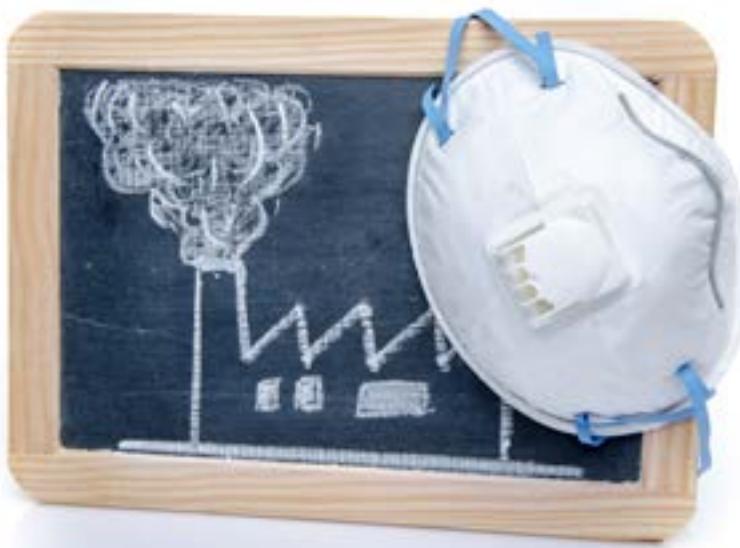
Anne-Elie Carsin

Sílvia Fochs Casas

Mariona Pinart Gilberga

Gemma Punyet Ribes

Pre- and post-natal life are critical periods in the origins of chronic diseases such as obesity and metabolic syndrome, cognitive development, and the origins of asthma and allergy. The main scientific objective of the group is to perform epidemiological studies on the early-life origins of neurodevelopment, obesity and metabolic syndrome, and allergies and asthma.





Publications 2014 in Collaboration with IMIM

Dr. Sunyer published 55 scientific articles in 2014. Below you will find those in collaboration with IMIM.

- Gascon M, Sunyer J, Casas M, Martínez D, Ballester F, Basterrechea M, Bonde JP, Chatzi L, Chevrier C, Eggesbø M, Esplugues A, Govarts E, Hannu K, Ibarluzea J, Kasper-Sonnenberg M, Klümper C, Koppen G, Nieuwenhuijsen MJ, Palkovicova L, Pelé F, Polder A, Schoeters G, Torrent M, Trnovec T, Vassilaki M, Vrijheid M. Prenatal exposure to DDE and PCB 153 and respiratory health in early childhood: a meta-analysis. *Epidemiology* 2014;25(4):544-553. IF 6.178. Q1.
- Gascon M, Sunyer J, Martínez D, Guerra S, Lavi I, Torrent M, Vrijheid M. Persistent organic pollutants and children's respiratory health: the role of cytokines and inflammatory biomarkers. *Environ Int* 2014;69C:133-40. IF 5.664. Q1.
- Guxens M, García-Estebe R, Giorgis-Allemand L, Forns J, Badaloni C, Ballester F, Beelen R, Cesaroni G, Chatzi L, de Agostini M, de Nazelle A, Eeftens M, Fernández MF, Fernández-Somoano A, Forastiere F, Gehring U, Ghassabian A, Heude B, Jaddoe VW, Klümper C, Kogevinas M, Krämer U, Larroque B, Lertxundi A, Lertxuni N, Murcia M, Navel V, Nieuwenhuijsen M, Porta D, Ramos R, Roumeliotaki T, Slama R, Sørensen M, Stephanou EG, Sugiri D, Tardón A, Tiemeier H, Tiesler CM, Verhulst FC, Vrijkotte T, Wilhelm M, Brunekreef B, Pershagen G, Sunyer J. Air pollution during pregnancy and childhood cognitive and psychomotor development: Six european birth cohorts. *Epidemiology* 2014;25(5):636-647. IF 6.178. Q1.
- Marinelli M, Sunyer J, Álvarez-Pedrerol M, Iñiguez C, Torrent M, Vioque J, Turner MC, Julvez J. Hours of television viewing and sleep duration in children: a multicenter birth cohort study. *JAMA Pediatr* 2014;168(5):458-464.
- Pinart M, Benet M, Annesi-Maesano I, von Berg A, Berdel D, Carlsen KC, Carlsen KH, Bindslev-Jensen C, Eller E, Fantini MP, Lenzi J, Gehring U, Heinrich J, Hohmann C, Just J, Keil T, Kerkhof M, Kogevinas M, Koletzko S, Koppelman GH, Kull I, Lau S, Melén E, Momas I, Porta D, Postma DS, Rancière F, Smit HA, Stein RT, Tischer CG, Torrent M, Wickman M, Wijga AH, Bousquet J, Sunyer J, Basagaña X, Guerra S,

Garcia-Aymerich J, Antó JM. Comorbidity of eczema, rhinitis, and asthma in IgE-sensitised and non-IgE-sensitised children in MEDALL: A population-based cohort study. *Lancet Respir Med* 2014;2(2):131-140. IF 9.629. Q1.

- Valvi D, Méndez MA, García-Estebar R, Ballester F, Ibarluzea J, Goñi F, Grimalt JO, Llop S, Marina LS, Vizcaino E, Sunyer J, Vrijheid M. Prenatal exposure to persistent organic pollutants and rapid weight gain and overweight in infancy. *Obesity (Silver Spring)* 2014;22(2):488-496. IF 4.389. Q1.
- Vilahur N, Fernández MF, Bustamante M, Ramos R, Forns J, Ballester F, Murcia M, Riaño I, Ibarluzea J, Olea N, Sunyer J. In utero exposure to mixtures of xenoestrogens and child neuropsychological development. *Environ Res* 2014;134C:98-104. IF 3.951. Q1.
- Vrijheid M, Slama R, Robinson O, Chatzi L, Coen M, van den Hazel P, Thomsen C, Wright J, Athersuch TJ, Avellana N, Basagaña X, Brochot C, Bucchini L, Bustamante M, Carracedo A, Casas M, Estivill X, Fairley L, van Gent D, González JR, Granum B, Gražulevičiené R, Gutzkow KB, Julvez J, Keun HC, Kogevinas M, McEachan RR, Meltzer HM, Sabidó E, Schwarze PE, Siroux V, Sunyer J, Want

EJ, Zeman F, Nieuwenhuijsen MJ. The human early-life exposome (HELIx): project rationale and design. *Environ Health Perspect* 2014;122(6):535-544. IF 7.029. Q1.

Social Epidemiology and Occupational Health

ASSOCIATED RESEARCH GROUP



Coordinator

Fernando García Benavides

Members

Lucía Artazcoz Lazcano
Pere Boix Ferrando
Jordi Delclòs Clanchet
Xavier Duran Jordà
Montserrat Fernàndez Busquets
Sandra Garrido Salmerón
David Gimeno Ruiz de Porras
Clara Carme Gual Llorens
Maria Andrée López Gómez
María López Ruiz
José Miguel Martínez Martínez
Pamela Alexandra Merino Salazar
Joan Mirabent Domingo
Bárbara Pons Pons
José María Ramada Rodilla
Albert Sánchez Niubó
Consol Serra Pujadas
Diego Alexis Sierra Cardoso
Mònica Ubalde López
Rudolf Van Der Haar

Sergio Vargas Prada
Figueroa
Elena Zaballa Lasala



The Research Group in Social Epidemiology and Occupational Health (CISAL-UPF) is a CEXS-UPF research group that is associated with the IMIM and CIBERESP, and is recognized as a consolidated group by the AGAUR.

CISAL-UPF studies occupational health issues with important implications for employees, businesses and governments that are particularly relevant for social welfare systems.

It aims for its research to be of use in improving worker health, evaluating the impact of preventive programmes in the workplace, and informing health policy priorities.

CISAL-UPF research focuses on a range of contemporary work-related health problems including, but not limited to, musculoskeletal disorders, workplace injuries and accidents, workplace prevention programmes; and the determinants of sickness absence and temporary/permanent disability. Its research also emphasizes vulnerable groups of workers, with a focus on population ageing, women, migrants, and precarious employment.

CISAL-UPF is involved in the development of new measurement tools for the Spanish workforce, and surveys of working conditions and health; it is also involved in ongoing research collaboration with institutes in Europe, North America and Latin America.





Publications 2014 in Collaboration with IMIM

Dr. Benavides published 15 scientific articles in 2014. Below you will find those in collaboration with IMIM.

- Benavides FG, Wesseling C, Delclòs GL, Felknor SA, Pinilla J, Rodrigo F, on behalf of the research team of the first Central American Survey of Working Conditions and Health. Working conditions and health in Central America: a survey of 12 024 workers in six countries. *Occup Environ Med* 2014;71(7):459-465. IF 3.234. Q1.
- López MA, Duran X, Alonso J, Martínez-Martínez JM, Espallargues M, Benavides FG. Estimación de la carga de enfermedad por incapacidad laboral permanente en España durante el período 2009-2012. *Rev Esp Salud Pública* 2014;88(3):349-358. IF 0.6. Q4.
- López-Ruiz M, Martínez-Martínez JM, Pérez K, Novoa A, Tobias A, Benavides FG. Impact of road safety interventions on traffic-related occupational injuries in Spain, 2004-2010. *Accident Anal Prev* 2014;66C:114-119. IF 2.571. Q1.
- Ramada JM, Delclòs GL, Amick III BC, Abma FI, Pidemunt G, Castaño JR, Bültmann U, Serra C. Responsiveness of the Work Role Functioning Questionnaire (Spanish Version) in a General Working Population. *J Occup Environ Med* 2014;56(2):189-194. IF 1.797. Q2.
- Ramada JM, Delclòs GL, Benavides FG, Fontané J, Arango O, Serra C. Evaluación de una unidad de detección de enfermedades profesionales en un hospital de tercer nivel. *Arch Prev Riesgos Labor* 2014;17(1):18-25.
- Ramada JM, Serra C, Amick III BC, Abma FI, Castaño JR, Pidemunt G, Bültmann U, Delclòs GL. Reliability and Validity of the Work Role Functioning Questionnaire (Spanish Version). *J Occup Rehabil* 2014;24(4):640-649. IF 1.917. Q1.
- Rodríguez-Jareño MC, Demou E, Vargas-Prada S, Sanati KA, Skerjanc A, Reis PG, Helimäki-Aro R, Macdonald EB, Serra C, on behalf of the UEMS Section of Occupational Medicine. European Working Time Directive and doctors' health: a systematic review of the available epidemiological evidence. *BMJ Open* 2014; 4(7):e004916. IF 2.063. Q2.
- Ruotsalainen JH, Verbeek JH, Mariné A, Serra C. Preventing occupational stress in healthcare workers. *Cochrane Database Syst Rev* 2014;12: CD002892. IF 5.939. Q1.

- Schmidt S, Garin O, Pardo Y, Valderas JM, Alonso J, Rebollo P, Rajmil L, Forero CG, Ferrer M, the EMPRO Group (...Vilagut G, Pont A, Barbaglia G, Castellví P, Redondo A, Becerra V, Villalonga-Olives E, García-Durán M, Rojas-Farreras S, Rodríguez A, Ramada JM...). Assessing quality of life in patients with prostate cancer: a systematic and standardized comparison of available instruments. *Qual Life Res* 2014;23(8):2169-2181. IF 2.864. Q1.

Ongoing Research Projects 2014 in Collaboration with IMIM

- Evaluación de intervenciones en ergonomía participativa en enfermedades hospitalarias
 - > Col·legi Oficial d’Infermeria de Barcelona (PR-1805/13)
 - > Principal researcher: Mirabent Domingo, Joan



PROGRAMME

Inflammatory and Cardiovascular Disorders

The programme is made up of the following research groups:

B Cell Biology

Andrea Cerutti

Heart Diseases Biomedical Research Group

Josep Comín

Cell Research on Inflammation and Cartilage

Pedro Benito

Hepatologic Research

Ricard Solà

Immunity and Infection

Miguel López-Botet

Infectious Pathology and Antimicrobial Research

Juan Pablo Horcajada

Inflammatory and Neoplastic Dermatological Diseases

Ramon M. Pujol

Kidney Disease

Julio Pascual

Musculoskeletal Research

Francesc Xavier Nogués

Myogenesis, Inflammation and Muscle Function

Joaquim Gea

Neuro-Enteric Translational Science Research

Sílvia Delgado

Neurovascular

Jaume Roquer

Rehabilitation

Esther Duarte

The programme has one associated group:

Genetic Causes of Disease

Xavier Estivill

The Research in Inflammatory and Cardiovascular Disorders (RICAD) programme was originally designed to integrate the diversity of research interests deriving from different clinical specialties at Hospital del Mar. Sharing knowledge and experience relating to the genetic basis and pathophysiology of

inflammatory processes, which primarily underlie or contribute to different diseases, should constitute the connecting thread.

RICAD currently brings together some 160 people distributed across 14 groups, mostly led by investigators from Parc de Salut Mar (PSMar) clinical services together with three experts in Immunology and Genetics.

In 2014 three new groups (Infectious Pathology and Antimicrobials, Heart Diseases Biomedical Research Group and Rehabilitation) were formally recognized and incorporated into RICAD. The reorganization process undertaken by the IMIM management had a positive impact on the space and resources allocated

A black and white photograph of Miguel López-Botet, a man with dark hair and a mustache, wearing glasses and a light blue button-down shirt. He is standing outdoors, leaning against a metal railing, with a building featuring horizontal blinds in the background.

Miguel
López-Botet

Programme Director



to RICAD researchers, which were chronically suboptimal and still deserve further attention. In this context, a team of experts in Epidemiology of Cardiovascular Disorders (Drs. Fitó, Elosua and Marrugat), formerly members of RICAD, were transferred to reinforce the Epidemiology and Public Health Programme which, beyond the development of specific research lines, is committed to supporting the translational research of other programmes (i.e. RICAD, Neurosciences and Cancer).

RICAD's performance in 2014 was satisfactory in quantitative terms according to its rate of indexed publications, its success in obtaining competitive grants and its undertaking of clinical trials; the main achievements have been highlighted in individual reports. It is of note that this important contribution to IMIM's activity and its external visibility has been largely accomplished by principal investigators with clinical duties.

The number of ongoing productive collaborations, internal and with other programs, is progressively increasing. Moreover, most RICAD researchers participate in the teaching and training of PhD students as well as Medical Residents, which also constitute essential tasks for our institute.

Among the challenges faced by RICAD, generally coinciding with those of IMIM, the following have become particularly relevant: a) fostering selective training and integration of young researchers; b) achieving a greater degree of internationalization and transfer activities; c) increasing leadership and visibility in original publications; d) strengthening translational research based on collaborations between basic and clinical teams, with the participation of the cross-disciplinary programmes in epidemiology and biomedical informatics.

Considering the high proportion of hospital-based groups in RICAD, we are aware that our programme is particularly vulnerable to health-care pressure, which limits time availability for research. With the collaboration of established researchers we hope to circumvent this drawback, supporting on a priority basis the initiatives of younger staff members that bring together aptitudes and a positive attitude for this endeavor. Achieving these goals will require strong commitment from us to strengthening communication and training activities.

B Cell Biology

RESEARCH GROUP



Coordinator

Andrea Cerutti (ICREA Professor)

Members

Sabrina Daniela Bascones Gleave

Carolina Barra Quaglia

Linda Cassis

Alejo Chorny

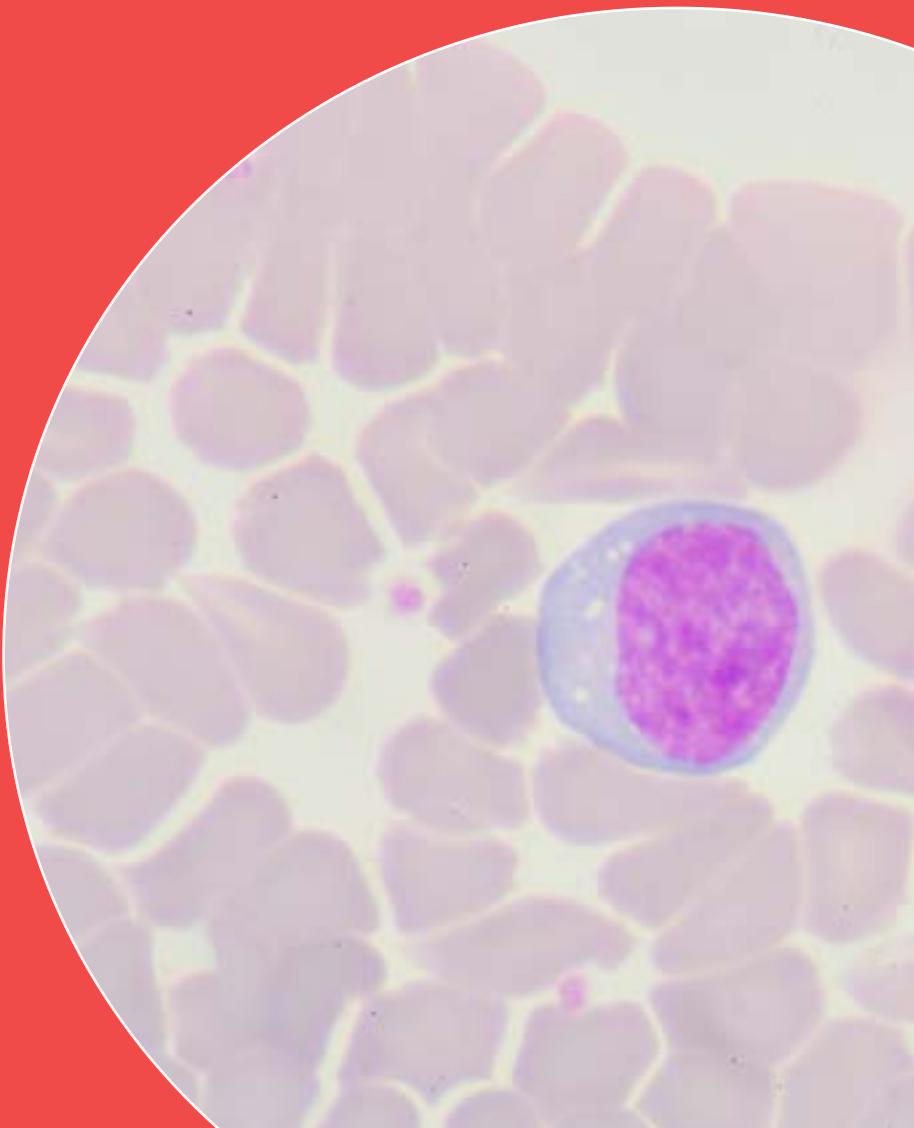
Laura Comerma Blesa

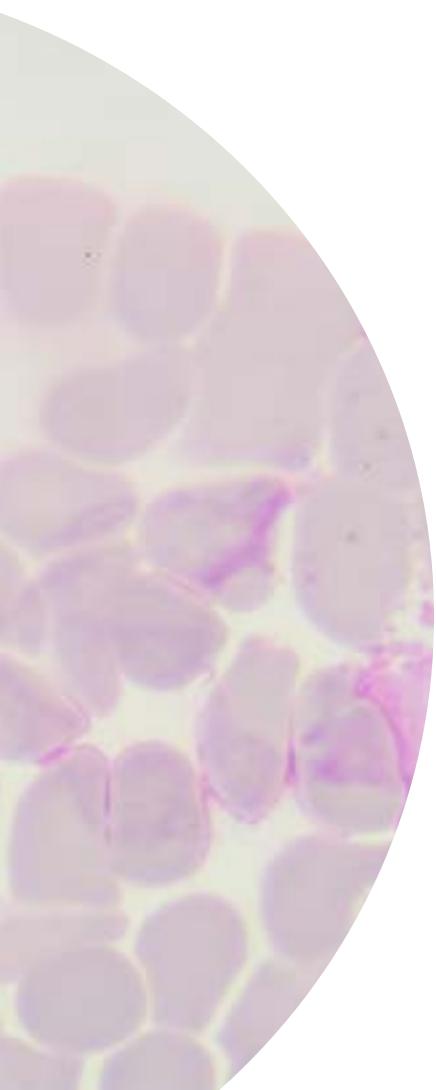
Maurizio Gentile

David Lligé Santafé

Giuliana Magri

Jordi Sintes Castro





The B Cell Biology research group makes use of different cellular, histological and molecular techniques to address basic questions related to the regulation of B cell activation and antibody production. B cells are a type of lymphocyte whose main function is to fight infections by producing antibodies. Our research group is especially interested in the immunoglobulin (Ig) class switching of antibody heavy chains. By substituting IgM with IgG, IgA or IgE, class switching provides antibodies with novel effector functions without changing their antigen specificity.

Our overall goal is to dissect the mechanisms by which different subsets of systemic and mucosal B cells regulate class switching in response to signals from microbial products and innate immune cells.



Main Publications 2014

- Espinet B, Ferrer A, Bellosillo B, Nonell L, Salar A, Fernández-Rodríguez C, Puigdecanet E, Gimeno J, García-García M, Vela MC, Luño E, Collado R, Navarro JT, de la Banda E, Abrisqueta P, Arenillas L, Serrano C, Lloreta J, Miñana B, Cerutti A, Florensa L, Orfao A, Sanz F, Solé F, Domínguez-Sola D, Serrano S. Distinction between asymptomatic monoclonal B-cell lymphocytosis with cyclin D1 overexpression and mantle cell lymphoma: from molecular profiling to flow cytometry. *Clin Cancer Res* 2014;20(4):1007-1019. IF 8.193. Q1.
- Fagarasan S, Magri G, Cerutti A. The Mucosal Immune System: Host-Bacteria Interaction and Regulation of Immunoglobulin A Synthesis. In: Honjo T, Reth M, Radbruch A, Alt F (editors). *Molecular Biology of B Cells*. London: Academic Press, 2014: 277-291.
- Grasset EK, Cerutti A. Immunology. Retroviral help for B cells. *Science* 2014;346(6216):1454-1455. IF 31.477. Q1.
- Gutzeit C, Magri G, Cerutti A. Intestinal IgA production and its role in host-microbe interaction. *Immunol Rev* 2014;260(1):76-85. IF 12.909. Q1.
- Gutzeit C, Nagy N, Gentile M, Lyberg K, Gumz J, Vallhov H, Puga I, Klein E, Gabrielsson S, Cerutti A, Scheynius A. Exosomes derived from Burkitt's lymphoma cell lines induce proliferation, differentiation, and class-switch recombination in B cells. *J Immunol* 2014;192(12):5852-5862. IF 5.362. Q1.
- Magri G, Miyajima M, Bascones S, Mortha A, Puga I, Cassis L, Barra CM, Comerma L, Chudnovskiy A, Gentile M, Llige D, Cols M, Serrano S, Aróstegui JI, Juan M, Yagüe J, Merad M, Fagarasan S, Cerutti A. Innate lymphoid cells integrate stromal and immunological signals to enhance antibody production by splenic marginal zone B cells. *Nat Immunol* 2014;15(4):354-64. IF 24.973. Q1.
- Puga I, Cerutti A, Cols M. Modulación del cambio de isotipo de las inmunoglobulinas por señales del sistema inmunitario innato. *Seminarios de la Fundación Española de Reumatología* 2014;15(1):11-18.

Ongoing Research Projects 2014

- Regulation and function of IgD in systemic lupus erythematosus
 - > European Community (PIRG-08-GA-2010-276928)
 - > Principal researcher: Cerutti, Andrea
- Regulación de linfocitos B humanos de la zona marginal por neutrófilos
 - > Ministerio de Ciencia e Innovación (SAF2011-25241)
 - > Principal researcher: Cerutti, Andrea
- Innate Signalling Networks in B-Cell Antibody Production: New Targets for Vaccine Development (ERC GRANT)
 - > European Community (294561)
 - > Principal researcher: Cerutti, Andrea

Other

- Dr. Andrea Cerutti received the Kenneth Rainin Award for Innovative Investigators to conduct cutting-edge Inflammatory Bowen Disease (IBD) research.

Group's Recognitions

- Officially recognized as a consolidated research group by the Generalitat de Catalunya: Grup de Biologia de les Cèl·lules B. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 832)
 - > Principal researcher: Cerutti, Andrea

Heart Diseases Biomedical Research Group

RESEARCH GROUP



Coordinator

Josep Comín Colet

Members

Neus Badosa Marcè
Víctor Bazán Gelizo
Begoña Benito Villabriga
Jordi Bruguera Cortada
Paula Cabero Cereto
Sandra Cabrera Gómez
Mercè Cladellas Capdevila
Cristina Enjuanes Grau
Cosme García García
Marina García Rodríguez
Anna García-Elias Heras
Paloma Garcimartín Cerezo
Marta Gimeno López
Miquel Gómez Pérez
Anna Herranz Blasco
Consol Ivern Díaz
Anna Maria Linàs Alonso
Julio Martí Almor



The group's multidisciplinary mission is to generate new scientific knowledge that connects basic research with the most practical aspects of patient care, in collaboration with other groups in the programme, in order to build a translational research philosophy with an impact on reducing the morbidity and mortality of heart diseases. This objective should materialize in the publication of biomedical studies with a high impact and the attainment of competitive funding.





Main Publications 2014

- Comín J, Verdú JM, Vela E, Clèries M, Bustins M, Mendoza L, Badosa N, Cladellas M, Ferré S, Bruguera J and others (Martí J) on behalf of the Programa Integrat d'Atenció a la Insuficiència Cardíaca de l'Àrea Integral de Salut Barcelona Litoral Mar. Efficacy of an Integrated Hospital-primary Care Program for Heart Failure: A Population-based Analysis of 56 742 Patients. *Rev Esp Cardiol (Engl Ed)* 2014;67(4):283-293. IF 3.342. Q2.
- Delgado JF, Oliva J, Llano M, Pascual-Figal D, Grillo JJ, Comín J, Díaz B, Martínez de la Concha L, Martí B, Peña LM. Health care and non-health care costs in the treatment of patients with symptomatic chronic heart failure in Spain. *Rev Esp Cardiol (Engl Ed)* 2014;67(8):643-650. IF 3.342. Q2.
- Enjuanes C, Klip IT, Bruguera J, Cladellas M, Ponikowski P, Banasiak W, van Veldhuisen DJ, van der Meer P, Jankowska EA, Comín J. Iron deficiency and health-related quality of life in chronic heart failure: Results from a multicenter European study. *Int J Cardiol* 2014;174(2):268-275. IF 6.175. Q1.
- Farré N, Bazán V, García C, Recasens L, Martí-Almor J, Ascoeta S, Vallès E, Meroño O, Ribas N, Bruguera J. Long-term outcome of transitory “reversible” complete atrio-ventricular block unrelated to myocardial ischemia. *Int J Cardiol* 2014;172(2):503-505. IF 6.175. Q1.
- Gómez-Pérez MA, Vila JS, Elosua R, Molina L, Bruguera J, Sala J, Masià R, Covas MI, Marrugat J, Fitó M. Relationship of lipid oxidation with subclinical atherosclerosis and 10-year coronary events in general population. *Atherosclerosis* 2014; 232(1):134-140. IF 3.971. Q1.
- Guasch E, Benito B, Nattel S. Of RATS and Men: Atrial Fibrillation in Veteran Endurance Runners (reply to letter to the editor). *J Am Coll Cardiol* 2014;63(1):89-90. IF 15.343. Q1.
- Klip IT, Jankowska EA, Enjuanes C, Voors AA, Banasiak W, Bruguera J, Rozentryt P, Polonski L, van Veldhuisen DJ, Ponikowski P, Comín J, van der Meer P. The additive burden of iron deficiency in the cardiorenal-anaemia axis: scope of a problem and its consequences. *Eur J Heart Failure* 2014;16(6):655-662. IF 6.577. Q1.
- Martí-Almor J, Jáuregui-Abularach M, Benito B, Vallès E, Bazán V, Sánchez-Font A, Vollmer I, Altaba C, Guijo MA,

Hervas M, Bruguera-Cortada J. Pulmonary Hemorrhage After Cryoballoon Ablation for Pulmonary Vein Isolation in the Treatment of Atrial Fibrillation. *Chest* 2014;145(1):156-157. IF 7.132. Q1.

- Vallès E, Bazán V, Cainzos-Achirica M, Jáuregui ME, Benito B, Bruguera J, Martí-Almor J. Incremental pacing maneuver for atrial flutter recurrence reduction after ablation. *Int J Cardiol* 2014;177(3):902-906. IF 6.175. Q1.

Ongoing Research Projects 2014

- Micro-RNAs plasmáticos en la fibrilación auricular asociada a la insuficiencia cardiaca crónica: desde la fisiopatología a la utilidad clínica
 - > Sociedad Española de Cardiología
 - > Principal researcher: Benito Villabriga, Begoña
- Estudio de la fibrilación auricular silente en pacientes con ictus criptogénico. Papel de las nuevas tecnologías y nuevos marcadores biológicos
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/01830)
 - > Principal researcher: Benito Villabriga, Begoña
- Evaluació de la intervenció educativa infermera: valoració de la qualitat de vida i capacitat funcional en el pacient sotmès a una cirurgia valvular

- > Col·legi Oficial d'Infermeria de Barcelona (PR-1811/13)
 - > Principal researcher: Cabero Cereto, Paula
- Efecto de la dieta mediterránea sobre mecanismos asociados a la mejora de la funcionalidad de la HDL
 - > Fondo de Investigación Sanitaria. ISCIII (Pl11/01647)
 - > Principal researcher: Cladellas Capdevila, Mercè
- Validación de un cuestionario abreviado de actividad física
 - > Fondo de Investigación Sanitaria. ISCIII (Pl10/02319)
 - > Principal researcher: Molina Ferragut, Lluís

Participation in Research Networks

- Red Cardiovascular
 - > Fondo de Investigación Sanitaria. ISCIII (RD12/0042/0002)
 - > Principal researcher: Comín Colet, Josep

Group's Recognitions

- Officially recognized as an emergent research group by the Generalitat de Catalunya: Grup de Recerca Biomèdica en Malalties del Cor (GREC). 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 446)
 - > Principal researcher: Comín Colet, Josep



Clinical Trials Signed in 2014

- Phase I: 1 (2012/4895)
- Phase II studies: 2 (2013/5371, 2013/5372)
- Phase II b studies: 1 (2014/5570)
- Phase III studies: 7 (2013/5401, 2013/5398, 2013/5439, 2014/5569, 2013/5327, 2014/5675, 2013/5335)
- Observational studies: 3 (2013/5192/I, 2014/5614, 2014/5693)

Other

► Book Chapters

- Martí-Almor J. Tratamiento con dronedarona en la fibrilación auricular paroxística. Drugs in context. Casos clínicos. Barcelona: JC Ediciones Médicas, 2014: 3-5. ISBN 1742-3635.
- Martí-Almor J, Bazán V, Vallès E, Benito B. Indicaciones especiales: Papel de los NACOs en la cardioversión eléctrica. Update en Anticoagulación. Cardiología 2014; 1(1): 15-16. Depósito Legal: M-14862-2014. ISSN: 2341-3972.

Cell Research on Inflammation and Cartilage

RESEARCH GROUP



Coordinator

Pedro Benito Ruiz

Members

Eduard Alentorn Geli
Aina Farran Díaz Cano
Jone Llorente Onaindia
Jordi Monfort Faure
Juan Carlos Monllau
Laura Tío Barrera

Our group comprises multidisciplinary researchers with broad experience in the field of clinical surgery and degenerative diseases, where our line of research on osteoporosis and osteoarthritis has been consolidated.

In addition, we have succeeded in coordinating basic and clinical research in which the two scientific aspects complement each other, with the possibility of obtaining results in basic research with clinical applicability.





Publications 2014

- Gelber PE, Batista J, Millan-Billi A, Patthauer L, Vera S, Gómez-Masdeu M, Monllau JC. Magnetic resonance evaluation of TruFit(R) plugs for the treatment of osteochondral lesions of the knee shows the poor characteristics of the repair tissue. *Knee* 2014;21(4):827-832. IF 1.702. Q2.
- Giménez M, Pujol J, Ali Z, López-Solá M, Contreras-Rodríguez O, Deus J, Ortiz H, Soriano-Mas C, Llorente-Onaindia J, Monfort J. Naproxen effects on brain response to painful pressure stimulation in patients with knee osteoarthritis: a double-blind, randomized, placebo-controlled, single-dose study. *J Rheumatol* 2014;41(11):2240-2248. IF 3.173. Q2.
- Lebourg M, Martínez-Díaz S, García-Giralt N, Torres R, Gómez-Ribelles JL, Vila G, Monllau JC. Cell-free cartilage engineering approach using hyaluronic acid-polycaprolactone scaffolds: a study in vivo. *J Biomater Appl* 2014;28(9):1304-1315. IF 2.764. Q2.
- López-Solá M, Pujol J, Wager TD, García-Fontanals A, Blanco-Hinojo L, García-Blanco S, Poca-Dias V, Harrison BJ, Contreras-Rodríguez O, Monfort J, García-

Fructuoso F, Deus J. Altered functional magnetic resonance imaging responses to nonpainful sensory stimulation in fibromyalgia patients. *Arthritis Rheumatol* 2014;66(11):3200-3209.

- Márquez A, Hernández-Rodríguez J, Cid MC, Solans R, Castañeda S, Fernández-Contreras ME, Ramentol M, Morado IC, Narváez J, Gómez-Vaquero C, Martínez-Taboada V, Ortego-Centeno N, Sopeña B, Monfort J, García-Villanueva MJ, Caminal-Montero L, de Miguel E, Blanco R, Palm O, Molberg O, Latus J, Braun N, Moosig F, Witte T, Beretta L, Santaniello A, Pazzola G, Boiardi L, Salvarani C, González-Gay MA, Martín J, Spanish GCA Consortium. Influence of the IL17A locus in giant cell arteritis susceptibility. *Ann Rheum Dis* 2014;73(9):1742-1745. IF 9.27. Q1.
- Márquez A, Solans R, Hernández-Rodríguez J, Cid M, Castañeda S, Ramentol M, Morado I, Rodríguez-Rodríguez L, Narváez J, Gómez-Vaquero C, Miranda-Filloy JA, Martínez-Taboada V, Rios R, Sopeña B, Monfort J, García-Villanueva M, Martínez-Zapico A, Marí-Alfonso B, Sánchez-Martín J, Unzurrunzaga A, Raya E, de Miguel E, Hidalgo-Conde A, Blanco R, González-Gay MA, Martín J. Analysis of two

- autoimmunity genes, IRAK1 and MECP2, in giant cell arteritis. *Clin Exp Rheumatol* 2014;32(3 supl.82): 30-33. IF 2.973. Q2.
- Pujol J, Macià D, García-Fontanals A, Blanco-Hinojo L, López-Solà M, García-Blanco S, Poca-Dias V, Harrison BJ, Contreras-Rodríguez O, Monfort J, García-Fructuoso F, Deus J. The contribution of sensory system functional connectivity reduction to clinical pain in fibromyalgia. *Pain* 2014;155(8):1492-1503. IF 5.836. Q1.
 - Torres R, Hinarejos P, Pérez-Prieto D, Gil-González S, Pelfort X, Leal J, Puig L. Sealing of the intramedullar femoral canal in a TKA does not reduce postoperative blood loss: A randomized prospective study. *Knee* 2014;21(4): 853-857. IF: 1.936 Q2.

Ongoing Research Projects 2014

- Reparación de lesiones condrales mediante microesferas de quitosano como soporte de condrocitos alogénicos. Estudio experimental *in vivo* en un modelo de conejo
 - > Sociedad Española de Cirugía Ortopédica y Traumatología
 - > Principal researcher: Martínez Díaz, Santos

- Búsqueda de marcadores moleculares para el diagnóstico precoz de la osteoartritis. Identificación de sustratos potenciales de las diferentes isoformas de MMP-13 en cartílago
 - > Fundación Española de Reumatología
 - > Principal researcher: Monfort Faure, Jordi
- Identificació de diferents isoformes de MMP-13 en individus artròsics. Caracterització de les seves capacitats catalítiques
 - > Societat Catalana de Reumatologia
 - > Principal researcher: Monfort Faure, Jordi

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Unitat de Recerca en Fisiopatología Òssia i Articular. 2014 Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 775)
 - > Principal researcher: Nogués Solan, Francesc Xavier

Hepatologic Research

RESEARCH GROUP



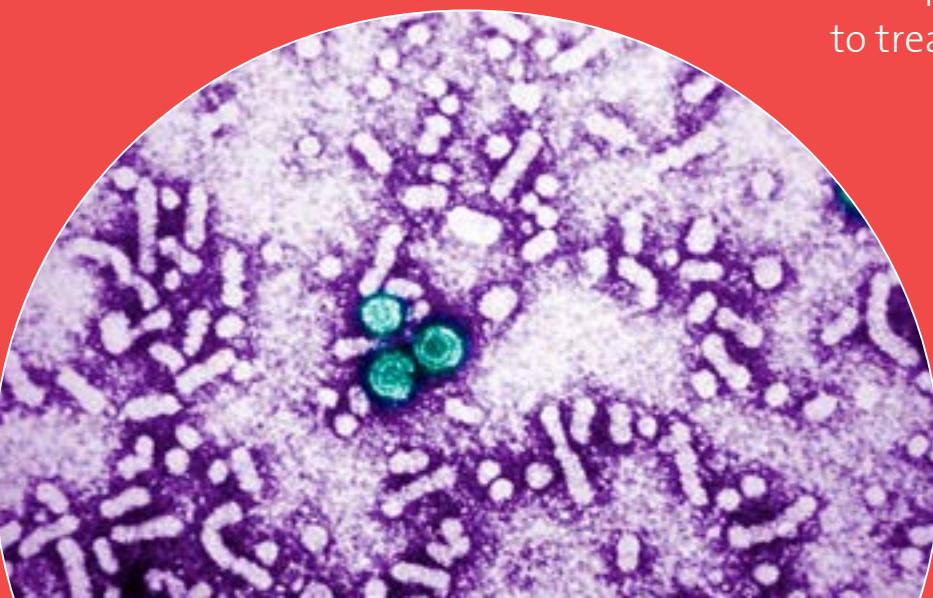
Coordinator

Ricard Solà Lamoglia

Members

Beatriz Cabrero Iñiguez
Núria Cañete Hidalgo
José Antonio Carrión Rodríguez
Susana Coll Estrada
Montserrat García Retortillo
Maria Dolors Giménez Romaní
Diego Lázaro Agudo
Anna Teis Feliu

Since 2000, the Hepatologic Research work group has followed various lines of clinical research: The natural history of decompensated cirrhosis, ascites, renal insufficiency and infections; Virological response and viral kinetics during hepatitis C treatment in patients with or without HIV coinfection; Adherence to hepatitis C treatment and the study, prevention and treatment of the psychiatric pathology associated with interferon, and the Progression of fibrosis in Hepatitis C with or without HIV coinfection. Recently we have also initiated different studies in Hepatitis B (particularly adherence to treatment and reactivation) and in hepatocellular carcinoma.



Main Publications 2014

- Ampuero J, del Campo JA, Rojas L, García-Lozano JR, Solà R, Andrade R, Pons JA, Navarro JM, Calleja JL, Buti M, González-Escribano MF, Forns X, Diago M, García-Samaniego J, Romero-Gómez M. PNPLA3 rs738409 causes steatosis according to viral & IL28B genotypes in hepatitis C. *Ann Hepatol* 2014;13:356-363. IF 2.193. Q3.
- Fernández-Rodríguez CM, Morillas RM, Masnou H, Navarro JM, Bárcena R, González JM, Martín-Martín L, Poyato A, Miquel-Planas M, Jorquera F, Casanovas T, Salmerón J, Calleja JL, Solà R, Alonso S, Planas R, Romero-Gómez M. Randomized clinical trial comparing high *versus* standard dose of ribavirin plus peginterferon alfa-2a in hepatitis C genotype 3 and high viral load. Dargen-3 study. *Gastroenterol Hepatol* 2014;37:1-8. IF 0.832. Q4.
- Rojas A, del Campo JA, Maraver M, Aparcero R, García-Valdecasas M, Diago M, Carmona I, Andrade RJ, Solà R, Romero-Gómez M. Hepatitis C virus infection alters lipid metabolism depending on IL28B polymorphism and viral genotype and modulates gene expression *in vivo* and *in vitro*. *J Viral Hepatitis* 2014;21(1):19-24. IF 3.307. Q2.

- Udina M, Hidalgo D, Navines R, Forns X, Solà R, Farré M, Capuron L, Vieta E, Martín-Santos R. Prophylactic Antidepressant Treatment of Interferon-induced Depression in Chronic Hepatitis C: A Systematic Review and Meta-Analysis. *J Clin Psychiatry* 2014;75(10):e1113-e1121. IF 5.139. Q1.

Ongoing Research Projects 2014

- Bases neurobiológicas de la depresión inducida por interferón en la hepatitis C crónica. Estudio PSICOCIT-VHC. Subproyecto II
 - > Fondo de Investigación Sanitaria. ISCIII (PI10/02291)
 - > Principal researcher: Solà Lamoglia, Ricard

Clinical Trials Signed in 2014

- Phase II studies: 1 (2014/5722)
- Phase III studies: 2 (2014/5478, 2014/5681)

Immunity and Infection

RESEARCH GROUP



Coordinator

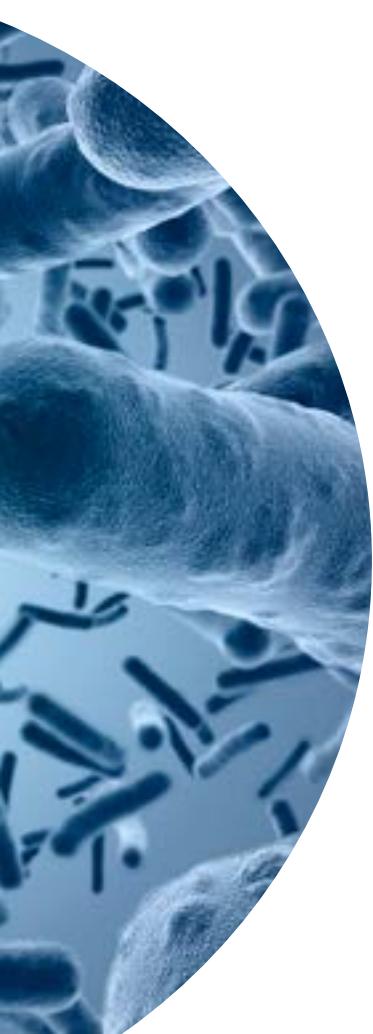
Miguel López-Botet Arbona

Members

Marcel Costa García
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Aura Muntasell Castellví
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Carme Sánchez Galiano
Laura Sòria Guerrero
Andrea Vera Barrón



The group integrates basic and clinical investigators from Hospital del Mar Medical Research Institute (IMIM) and Pompeu Fabra University (UPF). Our interest is mainly focused on the biology of human Natural Killer (NK) cells, involved in the innate immune response against infections and tumors. We originally reported that cytomegalovirus promotes a variable and persistent reconfiguration of the human NK cell compartment. We are currently exploring the nature of the underlying molecular and cellular mechanisms, as well as the involvement in antiviral defense and the implications in different clinical settings.





Main Publications 2014

- Bosch A, Panoutsopoulou K, Corominas JM, Gimeno R, Moreno-Bueno G, Martín-Caballero J, Morales S, Lobato T, Martínez-Romero C, Farias EF, Mayol X, Cano A, Hernández-Muñoz I. The Polycomb group protein RING1B is overexpressed in ductal breast carcinoma and is required to sustain FAK steady state levels in breast cancer epithelial cells. *Oncotarget* 2014;5(8):2065-76. IF 6.627. Q1.
- Grau-Rivera O, Sánchez-Valle R, Saiz A, Molinuevo JL, Bernabé R, Munteis E, Pujadas F, Salvador A, Saura J, Ugarte A, Titulaer M, Dalmau J, Graus F. Determination of neuronal antibodies in suspected and definite Creutzfeldt-Jakob disease. *JAMA Neurol* 2014;71(1):74-8.
- López-Botet M, Muntasell A, Vilches C. The CD94/NKG2C+ NK-cell subset on the edge of innate and adaptive immunity to human cytomegalovirus infection. *Semin Immunol* 2014;26(2):145-51. IF 6.124. Q1.
- Sansoni P, Vescovini R, Fagnoni FF, Akbar A, Arens R, Chiu YL, Cičin-Šain L, Dechanet-Merville J, Derhovanessian E, Ferrando-Martínez S, Franceschi C, Frasca D, Fulöp T, Furman D, Gkrania-Klotsas

E, Goodrum F, Grubeck-Loebenstein B, Hurme M, Kern F, Lilleri D, López-Botet M, Maier AB, Marandu T, Marchant A, Matheï C, Moss P, Muntasell A, Remmerswaal EB, Riddell NE, Rothe K, Sauce D, Shin EC, Simanek AM, Smithey MJ, Söderberg-Nauclér C, Solana R, Thomas PG, van Lier R, Pawelec G, Nikolich-Zugich J. New advances in CMV and immunosenescence. *Exp Gerontol* 2014;55:54-62. IF 3.529. Q1.

Ongoing Research Projects 2014

- Recuperación del componente linfoide en el postrasplante mediante la infusión de progenitores y células T específicas
 - > Fondo de Investigación Sanitaria. ISCIII (PI10/00001)
 - > Principal researcher: Gimeno Martínez, Ramón
- A multicenter prospective strategy to improve the cure of high-risk acute leukemias by fostering a platform for on-time allogeneic therapy in patients without an HLA-identical donor
 - > Fundació La Marató de TV3 (20133231)
 - > Principal researcher: Gimeno Martínez, Ramón

► Pompeu Fabra University (UPF) Projects

- Natural killer cell-based anti-cancer Immunotherapies (NATURIMMUN): Research training in molecular medicine and biotechnology business
 - > EC FP7 Marie Curie Training Network (FP7-PEOPLE- 2012-ITN-317013)
 - > Principal researcher: López-Botet Arbona, Miguel
- Evaluation of NK cell contribution to chronic kidney allograft rejection in response to HLA-specific alloantibodies, genetic mismatch and CMV infection
 - > Fundació La Marató de TV3 137/C/2012 (121531)
 - > Principal researcher: López-Botet Arbona, Miguel
- Analysis of the human NK-cell receptor repertoire and its adaptive reconfiguration by HCMV infection: mechanisms and implications in immunity
 - > Programa Estatal de I+D+I (Retos) (SAF2013-49063-C2-1-R)
 - > Principal researcher: López-Botet Arbona, Miguel

Participation in Research Networks

- Red Española de Esclerosis Múltiple (REEM)
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS (RD12/0032/0016)
 - > Principal researchers: López-Botet Arbona, Miguel; Martínez-Rodríguez, José E.

Clinical Trials Signed in 2014

- Observational studies: 4 (2014/5616, 2013/5367, 2014/5617, 2014/5866)

Infectious Pathology and Antimicrobial Research

RESEARCH GROUP

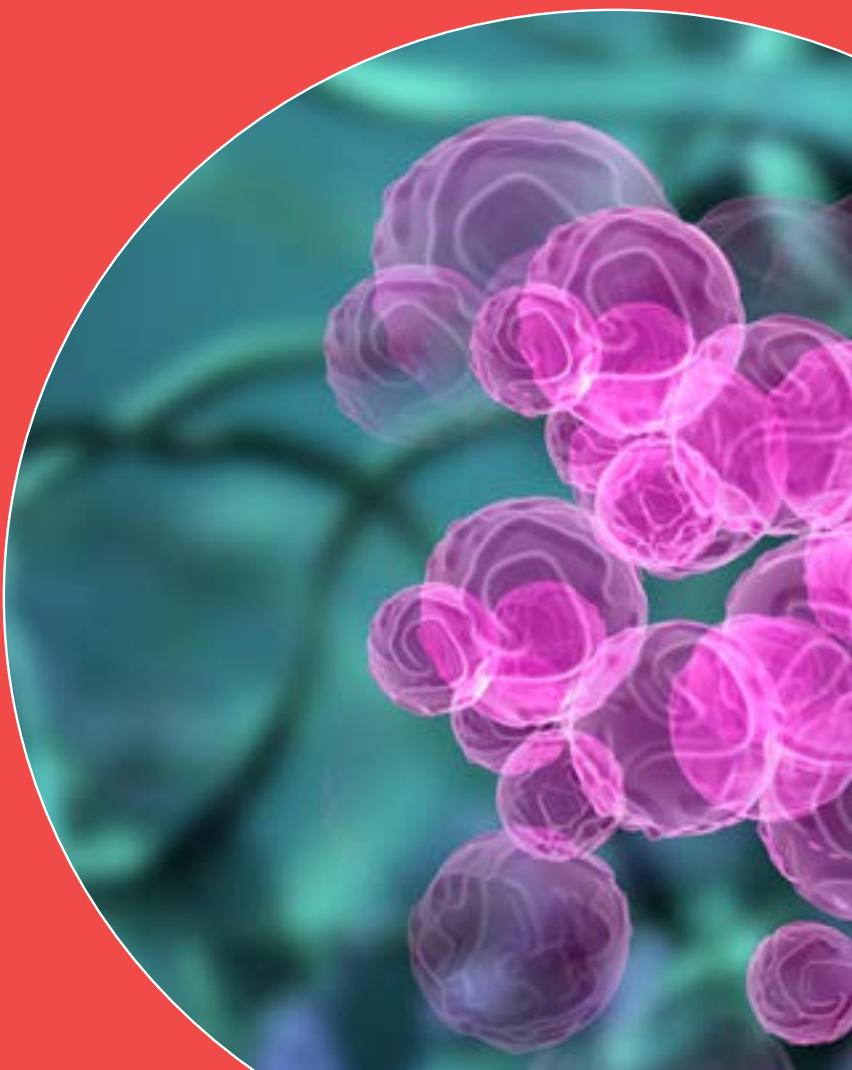


Coordinator

Juan Pablo Horcajada Gallego

Members

Núria Campillo Ambrós
Erika Esteve Palau
Bárbara García Suárez
Alicia González Mena
Santiago Grau Cerrato
Ana Guelar Grimberg
Roberto Carlos Güerri Fernández
Hernando Knobel Freud
Sonia Luque Pardos
Lluís Puig Verdié
Francisca Sánchez Martínez
M. Luisa Sorli Redó
Judith Villar García





The group is geared towards the clinical and epidemiological study of the most prevalent or transcendental infectious diseases in the community, such as HIV, pneumonia, urinary tract infections and tuberculosis. It also focuses on infections related to the provision of healthcare, including those caused by multidrug-resistant microorganisms, osteoarticular and prosthetic infections, and bacteremia. A large proportion of the research done by the group focuses on antimicrobial therapy with new and old antibiotics, studying the pharmacokinetics and pharmacodynamics of these drugs and also studying new antimicrobial therapy strategies through clinical trials and observational studies carried out in the group, as main researchers, and collaborators in projects run by the group or multicenter projects.



Main Publications 2014

- Curran A, Monteiro P, Domingo P, Villar J, Imaz A, Martínez E, Fernández I, Knobel H, Podzamczer D, Iribarren JA, Peñaranda M, Crespo M; PIMOCS Study Group. Effectiveness of ritonavir-boosted protease inhibitor monotherapy in the clinical setting: same results as in clinical trials? The PIMOCS Study Group. *J Antimicrob Chemother* 2014;69(5):1390-1396. IF 5.439. Q1.
- Esteban J, Sorlí L, Alentorn-Geli E, Puig L, Horcajada JP. Conventional and molecular diagnostic strategies for prosthetic joint infections. *Expert Rev Mol Diagn* 2014;14(1):83-96. IF 4.27. Q1.
- Gasch O, Camoëz M, Domínguez MA, Padilla B, Pintado V, Almirante B, Martín-Gandul C, López-Medrano F, Ruiz de Gopegui E, Blanco JR, García-Pardo G, Calbo E, Horcajada JP, Granados A, Jover A, Dueñas C, Pujol M, REIPI/GEIH Study Groups (...Montero M, Salvadó M...). Lack of association between genotypes and haematogenous seeding infections in a large cohort of patients with methicillin-resistant *Staphylococcus aureus* bacteraemia from 21 Spanish hospitals. *Clin Microbiol Infect* 2014;20(4):361-367. IF 5.197. Q1.
- Gasch O, Camoëz M, Domínguez MA, Padilla B, Pintado V, Almirante B, Martín C, López-Medrano F, Ruiz de Gopegui E, Blanco JR, García-Pardo G, Calbo E, Montero M, Granados A, Jover A, Dueñas C, Pujol M, on behalf of the REIPI/GEIH Study Groups (...Horcajada JP, Salvadó M...). Emergence of resistance to daptomycin in a cohort of patients with methicillin-resistant *Staphylococcus aureus* persistent bacteraemia treated with daptomycin. *J Antimicrob Chemother* 2014;69(2):568-571. IF 5.439. Q1.
- Herrera-Ramos E, López-Rodríguez M, Ruiz-Hernández JJ, Horcajada JP, Borderías L, Lerma E, Blanquer J, Pérez-González MC, García-Laorden MI, Florido Y, Mas V, Montero M, Ferrer JM, Sorli L, Vilaplana C, Rajas O, Briones M, Aspa J, López-Granados E, Solé-Violán J, Rodríguez de Castro F, Rodríguez-Gallego C. Surfactant protein A genetic variants associate with severe respiratory insufficiency in pandemic influenza A virus infection. *Crit Care* 2014;18(3):R127. IF 5.035. Q1.
- Luque S, Grau S, Álvarez-Lerma F, Ferrández O, Campillo N, Horcajada JP, Basas-Satorras M, Lipman J, Roberts JA. Plasma and cerebrospinal fluid concentrations of linezolid in

neurosurgical critically ill patients with proven or suspected central nervous system infections. *Int J Antimicrob Ag* 2014;44(5):409-415. IF 4.269. Q1.

- Podzamczer D, Imaz A, Pérez I, Viciña P, Valencia E, Curto J, Martín T, Castaño M, Rojas J, Espinosa N, Moreno V, Asensi V, Iribarren JA, Clotet B, Force L, Bachiller P, Knobel H, López Bernaldo de Quirós JC, Blanco JR, Rozas N, Vergas J, Ocampo A, Camacho A, Flores J, Gómez-Sirvent JL; KIDAR Study Group. Abacavir/lamivudine plus darunavir/ritonavir in routine clinical practice: a multicentre experience in antiretroviral therapy-naïve and -experienced patients. *J Antimicrob Chemother* 2014;69(9):2536-40. IF 5.439. Q1.
- Portillo ME, Salvadó M, Alier A, Martínez-Díaz S, Sorli ML, Horcajada JP, Puig L. Advantages of sonication fluid culture for the diagnosis of prosthetic joint infection. *J Infection* 2014;69(1):35-41. IF 4.017. Q1.
- Rodríguez Pardo D, Pigrau C, Lora Tamayo J, Soriano A, del Toro MD, Cobo J, Palomino J, Euba G, Riera M, Sánchez Somolinos M, Benito N, Fernández Sampedro M, Sorli L, Guio L, Iribarren JA, Baraia Etxaburu JM, Ramos A, Bahamonde A, Flores Sánchez X, Corona PS, Ariza J, on behalf of the REIPI Group

for the Study of Prosthetic Infection Group for the Study of Prosthetic Infection. Gram-negative prosthetic joint infection: outcome of a debridement, antibiotics and implant retention approach. A large multicentre study. *Clin Microbiol Infec* 2014;20(11):0911-0919. IF 5.768. Q1.

- Shaw E, Benito N, Rodríguez-Baño J, Padilla B, Pintado V, Calbo E, Pallarés MA, Gozalo M, Ruiz-Garbajosa P, Horcajada JP, on behalf of the REIPI/ITUBRAS-GEIH group, Spain. Risk factors for severe sepsis in community-onset bacteraemic urinary tract infection: Impact of antimicrobial resistance in a large hospitalised cohort. *J Infection* 2015;70(3):247-254. IF 4.017. Q1.

Ongoing Research Projects 2014

- Utilidad de la monitorización de niveles plasmáticos de colistina y colistimetato sódico en pacientes con infecciones por bacilos gram negativos multirresistentes tratados con colistina
 - > Ministerio de Sanidad y Política Social (EC10-165)
 - > Principal researcher: Horcajada Gallego, Juan Pablo
- Estudio multicéntrico sobre la utilidad de la monitorización de nivelesplasmáticos



de colistina y colistimetatosódico en pacientes con infecciones por bacilos gram negativos multirresistentes tratados con colistina

- > Ministerio de Sanidad, Servicios Sociales e Igualdad (EC11-467)
- > Principal researcher: Horcajada Gallego, Juan Pablo
- Ensayo clínico multicéntrico aleatorizado que compara la eficacia de la combinación de colistina y meropenem versus colistina en monoterapia para el tratamiento de bacteriemias y neumonías por *Pseudomonas aeruginosa* extremadamente resistente con sensibilidad reducida a meropenem
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/00984)
 - > Principal researcher: Horcajada Gallego, Juan Pablo
- Estudio de la toxicidad ósea en el paciente VIH por medio de la microindentación y surelación con marcadores inflamatorios
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/00589)
 - > Principal researcher: Güerri Fernández, Roberto Carlos

Participation in Research Networks

- Sociedad Española de Enfermedades Infecciosas y Microbiología Clínica (SEIMC). Grupo de Estudio de Infección Hospitalaria (GEIH).
- Red Española de Investigación en Patología Infecciosa (REIPI). REIPI Group for the Study of Prosthetic Infection
- CIBERES. Grup de Recerca Grip A H1N1. Joaquim Gea
- CIBERESP. Cases and Controls in Pandemic Influenza Working Group.

Clinical Trials Signed in 2014

- Phase III studies: 2 (2014/5678, 2013/5445)
- Phase IV studies: 2 (2014/5558, 2014/5567)
- Observational studies: 1 (2014/5600)

Inflammatory and Neoplastic Dermatological Diseases

RESEARCH GROUP



Coordinator

Ramon Maria Pujol Vallverdú

Members

Lluïsa Carnero Sánchez
Marta Ferran Farrés
Anna Maria Giménez Arnau
Maria Inmaculada Hernández Muñoz
Josep Herrero González
Daniel López Aventín
Gemma Martín Ezquerra
Sonia Segura Tigell
Agustí Toll Abelló

The Group for Research in Inflammatory and Neoplastic Dermatological Diseases is composed of dermatologists, biologists and immunologists, connecting the bedside with the bench, which is a clear example of translational research. The group includes two different lines of investigation: (1) The study of inflammatory dermatological diseases, mainly psoriasis (as a model of CLA+ T cells inflammatory disease) and bullous diseases, (2) Research into the pathogenetic mechanisms of progression and immunological response to non-melanoma skin cancer.



Main Publications 2014

- Bosch A, Panoutsopoulou K, Corominas JM, Gimeno R, Moreno-Bueno G, Martín-Caballero J, Morales S, Lobato T, Martínez-Romero C, Farias EF, Mayol X, Cano A, Hernández-Muñoz I. The Polycomb group protein RING1B is overexpressed in ductal breast carcinoma and is required to sustain FAK steady state levels in breast cancer epithelial cells. *Oncotarget* 2014;5(8):2065-2076. IF 6.627. Q1.
- Bråred Christensson J, Andersen KE, Bruze M, Johansen JD, Garcia-Bravo B, Giménez Arnau A, Goh CL, Nixon R, White IR. Positive patch test reactions to oxidized limonene: exposure and relevance. *Contact Dermatitis* 2014;71(5):264-272. IF 3.624. Q1.
- Curto L, Carnero L, López-Aventin D, Traveria G, Roura G, Giménez-Arnau A. Fast itch relief in an experimental model for methylprednisolone aceponate topical corticosteroid activity, based on allergic contact eczema to nickel sulphate. *J Eur Acad Dermatol Venereol* 2014;28(10):1356-1362. IF 3.133. Q1.
- Jáuregui I, Ortiz de Frutos FJ, Ferrer M, Giménez-Arnau A, Sastre J, Bartra J, Labrador M, Silvestre JF, Valero A. Assessment of severity and quality of life in chronic urticaria. *J Investig Allergol Clin Immunol* 2014;24:80-86. IF 2.642. Q3.
- Kuhn A, Sigges J, Bazar C, Ruland V, Patsinakidis N, Landmann A, Amler S, Bonsmann G (... Pujol RM, Sánchez J,...). Influence of smoking on disease severity and antimalarial therapy in cutaneous lupus erythematosus: analysis of 1002 patients from the EUSCLE database. *Br J Dermatol* 2014;171(3):571-579.
- Pérez Ferriols A, Aguilera J, Aguilera P, de Argila D, Barnadas MA, de Cabo X, Carrascosa JM, de Gálvez Aranda MV, Gardeazábal J, Giménez-Arnau A, Lecha M, Lorente J, Martínez-Lozano JA, Rodríguez Granados MT, Sola Y, Utrillas MP; on behalf of the Grupo Español de Fotobiología. Determination of Minimal Erythema Dose and Anomalous Reactions to UVA Radiation by Skin Phototype. *Actas Dermosifiliogr* 2014;105(8):780-788.
- Ryberg K, Agner T, Andersen KE, Bircher A, Diepgen T, Foti C, Giménez-Arnau A, Gonçalo M, Goossens A, Johansen JD, Le Coz C, Maibach HI, Bruze M. Patch testing with a textile dye mix-a multicentre study. *Contact Dermatitis* 2014;71(4):215-223. IF 3.624. Q1.
- Toll A, Lloveras B, Masferrer E, Ferrández-Pulido C, García-Patos V, Gheit T, Pujol RM, Tommasino M. Human beta papillomavirus DNA study in primary cutaneous squamous cell carcinomas

and their corresponding metastases. Arch Dermatol Res 2014;306(1):93-95. IF 2.27. Q1.

Ongoing Research Projects 2014

- Papel de las proteínas polycomb en progresos de migración celular implicados en tumorigénesis y metástasis
 - > Fondo de Investigación Sanitaria. ISCIII (PSog/00973)
 - > Principal researcher: Hernández Muñoz, María Inmaculada
- Estudio comparativo del perfil genómico y de expresión en carcinomas escamosos cutáneos invasivos e intraepiteliales
 - > Fondo de Investigación Sanitaria. ISCIII (PI10/00785)
 - > Principal researcher: Toll Abelló, Agustí
- Mecanismos moleculares que determinan la activación de linfocitos y células residentes cutáneas en psoriasis: búsqueda de dianas terapéuticas
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/01716)
 - > Principal researcher: Pujol Vallverdú, Ramon Maria

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca de Malalties Dermatològiques Inflamatòries i Tumorals (ITDED). 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 646)
 - > Principal researcher: Pujol Vallverdú, Ramon Maria

Clinical Trials Signed in 2014

- Phase III studies: 2 (2014/5604, 2014/5863)
- Observational studies: 4 (2013/5324, 2013/5261/I, 2014/5666, 2014/5673)

Award

- Award Profesor Giménez Camarasa 2014 to the best scientific study on cutaneous allergy (Academia Española de Dermatología y Venereología): “CD63 expression as a severity marker in patients with chronic spontaneous Urticaria”

Kidney Disease

RESEARCH GROUP



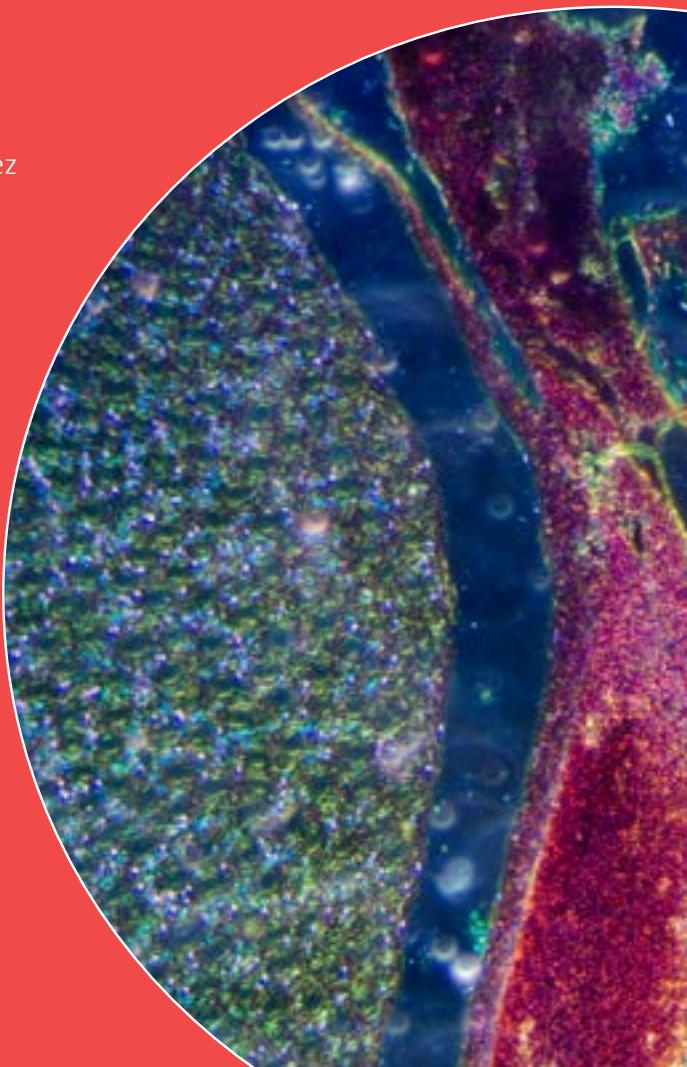
Coordinator

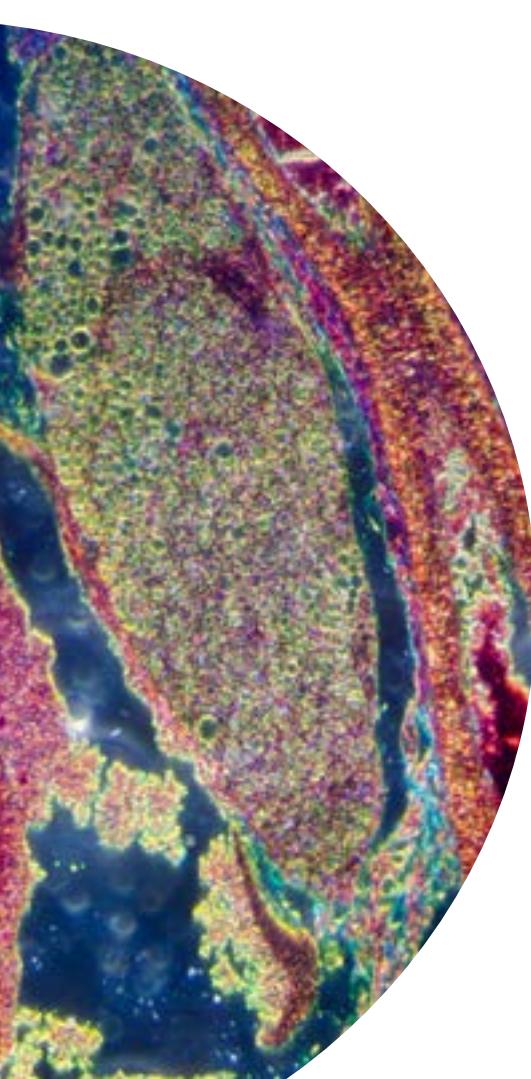
Julio Pascual Santos

Members

Lidia Anguiano Gómez
Mercè Borderia Nogueroles
Clara Barrios Barrera
Sergi Clotet Freixas
Sílvia Collado Nieto
Marta Crespo Barrio
Núria Cubino Junyent
Anna Faura Vendrell
Javier Gimeno Beltran
Raquel Martín Carrión
Anna Oliveras Serrano
Maria José Pérez Sáez
Marta Rebull Santamaría
María Dolores Redondo Pachón
Marta Riera Oliva
Judit Rigol Giner
Eva Rodríguez García
Laia Sans Atxer

M. José Soler Romeo
Susana Vázquez González
Maria Vera Casanova





The group aims to contribute to clarifying the mechanisms involved in the onset and progression of kidney diseases through preclinical research into *in vivo* and *in vitro* models which allow the study of the molecular mechanisms involved, which will thus help us to identify treatment targets and new strategies against kidney diseases. It also aims to study new treatment targets and strategies in depth by performing controlled clinical trials and conducting observational projects of major interest, while securing all levels of possible commitment: promoters, principal investigators, collaboration in multi-center projects and in-house projects.

Our research focuses mainly on kidney diseases such as diabetic or polycystic nephropathy, in addition to treatment-resistant hypertension and the search for biomarkers in chronic and acute kidney failure.



Main Publications 2014

- Bozic M, Panizo S, Sevilla MA, Riera M, Soler MJ, Pascual J, López I, Freixenet M, Fernández E, Valdivielso JM. High phosphate diet increases arterial blood pressure via a parathyroid hormone mediated increase of renin. *J Hypertens* 2014;32(9):1822-1832. IF 4.222. Q1.
- Márquez E, Riera M, Pascual J, Soler MJ. Albumin inhibits the insulin-mediated ACE2 increase in cultured podocytes. *Am J Physiol Renal* 2014;306(11):F1327-1334. IF 3.3. Q1.
- Montero N, Webster AC, Royuela A, Zamora J, Crespo Barrio M, Pascual J. Steroid avoidance or withdrawal for pancreas and pancreas with kidney transplant recipients. *Cochrane Database Syst Rev* 2014;9:CD007669. IF 5.939. Q1.
- Riera M, Márquez E, Clotet S, Gimeno J, Roca H, Lloreta J, Juanpere N, Batlle D, Pascual J, Soler MJ. Effect of insulin on ACE2 activity and kidney function in the non-obese diabetic mouse. *PLoS ONE* 2014;9(1):e84683. IF 3.534. Q1.
- Rodríguez E, Riera M, Barrios C, Pascual J. Value of plasmatic membrane attack complex as a marker of severity in acute kidney injury. *Biomed Res Int* 2014;2014:361065.

- Soler MJ, Montero N, Pascual MJ, Barrios C, Márquez E, Orfila MA, Cao H, Arcos E, Collado S, Comas J, Pascual J. Age may explain the association of an early dialysis initiation with poor survival. *QJM* 2014;107(11):879-886. IF 2.461. Q1.
- Yubero-Lahoz S, Rodríguez J, Faura A, Pascual J, Oliveras A, Cao H, Farré M, de la Torre R. Determination of free serotonin and its metabolite 5-HIAA in blood human samples with consideration to pre-analytical factors. *Biomed Chromatogr* 2014;28(12):1641-1646. IF 1.662. Q3.

Ongoing Research Projects 2014

- Evaluation of NK cell contribution to chronic kidney allograft rejection in response to HLA-specific alloantibodies, genetic mismatch and CMV infection
 - > Fundació La Marató de TV3 (121530)
 - > Principal researcher: Crespo Barrio, Marta
- Denervación simpática renal versus escalada terapéutica farmacológica en la hipertensión arterial resistente
 - > Ministerio de Sanidad, Política Social e Igualdad (EC11-426)
 - > Principal researcher: Oliveras Serrano, Anna
- Actividad sérica del ECA2 en pacientes diabéticos con enfermedad renal crónica. Efecto de la delección del ECA2 en la nefropatía diabética experimental

- > Fondo de Investigación Sanitaria. ISCIII
(PI11/01549)
 - > Principal researcher: Soler Romeo, M. José
- Análisis prospectivo de la respuesta humoral y celular en el trasplante renal y su impacto en la disfunción crónica del injerto
 - > Fondo de Investigación Sanitaria. ISCIII
(PI13/00598)
 - > Principal researcher: Pascual Santos, Julio

Participation in Research Networks

- Red de Investigación Renal
 - > Fondo de Investigación Sanitaria. ISCIII.
Subprograma RETICS (RD12/0021/0024)
 - > Principal researcher: Pascual Santos, Julio
- DESCARTES group (Developing Education Science and Care for Renal Transplantation in European States)
 - > Member and Spanish coordinator: Pascual Santos, Julio

Group's Recognition

- Officially recognized as a consolidated research group the Generalitat de Catalunya: Grup de Recerca en Nefropaties (GREN). 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 839)
 - > Principal researcher: Pascual Santos, Julio

Clinical Trials Signed in 2014

- Phase II studies: 2 (2013/5328, 2014/5522)
- Phase III studies: 4 (2013/5441, 2014/5479, 2014/5657, 2014/5721)
- Phase IV studies: 1 (2012/4890)
- Observational studies: 1 (2014/5849)

Other

- Best work in Basic Nephrology at the Societat Catalana de Nefrologia 2014: Riera M, Márquez E, Clotet S, Gimeno J, Roca-Ho H, Lloreta J, Juanpere N, Batlle D, Pascual J, Soler MJ. Effect of Insulin on ACE2 Activity and Kidney Function in the Non-Obese Diabetic Mouse.
- Master in Osteopathy 2013-2014 (Pompeu Fabra University, Escola d'Osteopatia). María José Soler Romeo.
- Guest lecturer: Julio Pascual Santos. The old recipient: problems and challenges. 51st European Dialysis and Transplantation Association-European Renal Association Congress. Amsterdam, 31 May 2014.

Musculoskeletal Research

RESEARCH GROUP



Coordinator

Francesc Xavier Nogués Solan

Members

- | | |
|------------------------------|--------------------------|
| Sergi Ariño Ballester | María Rodríguez Sanz |
| Isabel Aymar Fàbrega | Guillem Saló Bru |
| Josep Blanch Rubio | Emilia Solé Altarriba |
| Enric Cáceres Palou | August Supervia Caparrós |
| Jordi Carbonell Abelló | Elisa Torres del Pliego |
| Ramón Carreras Collado | Laia Vilaplana Marz |
| Juan Cebamanos Celma | |
| Manel Ciria Recasens | |
| Laura de Ugarte Corbalán | |
| Elisabeth del Amo Laforga | |
| Adolf Díez Pérez | |
| Natalia García Giralt | |
| Arturo Garrido Saldaña | |
| M. Jesús Herrero Gascón | |
| Leonardo Mellibovsky Saioler | |
| Rosangela Pecorelli Capozzi | |
| Daniel Prieto Alhambra | |





The Musculoskeletal Research Group focuses on the study of bone mineral metabolism in patients with osteoporosis and other diseases related with bone loss. Three strong lines of investigation are being undertaken by the group: Genetics, Epidemiology and Bone quality. The study of polymorphisms of genes related with bones and osteoporosis, functional analysis and association studies are the milestones of Genetics. BARCOS and B-ABLE are two cohorts of patients currently involved in ongoing studies related with bone health. Our group is co-investigator in the development of a novel, hand-held Reference Point Indentation (RPI) instrument, osteoprobe®, that measures how well the bone of living patients resists indentation. Local and international epidemiological studies are also undertaken in the group.



Main Publications 2014

- Compston JE, Flahive J, Hosmer D, Watts NB, Siris ES, Silverman S, Saag KG, Roux C, Rossini M, Pfeilschifter J, Nieves J, Netelenbos JC, March L, LaCroix AZ, Hooven FH, Greenspan SL, Gehlbach S, Díez-Pérez A, Cooper C, Chapurlat RD, Boonen S, Anderson Jr FA, Adami S, Adachi JD, for the GLOW Investigators. Relationship of weight, height, and body mass index with fracture risk at different sites in postmenopausal women: The global longitudinal study of osteoporosis in women (GLOW). *J Bone Miner Res* 2014;29(2):487-493. IF 6.589. Q1.
- Gardon M, Melero H, García-Giralt N, Dosta S, Cano IG, Guilemany JM. Enhancing the bioactivity of polymeric implants by means of cold gas spray coatings. *J Biomed Mater Res B* 2014;102(7):1537-1543. IF 2.328. Q2.
- McClung MR, Grauer A, Boonen S, Bolognese MA, Brown JP, Díez-Pérez A, Langdahl BL, Reginster JY, Zanchetta JR, Wasserman SM, Katz L, Maddox J, Yang YC, Libanati C, Bone HG. Romosozumab in Postmenopausal Women with Low Bone Mineral Density. *New Engl J Med* 2014;370(5):412-420. IF 54.42. Q1.
- Melero H, García-Giralt N, Fernández J, Díez-Pérez A, Guilemany JM. In vitro performance of ceramic coatings obtained by high velocity oxy-fuel spray. *Bio-Med Mater Eng* 2014;24(5):1781-1791. IF 0.847. Q4.
- Prieto-Alhambra D, Gürri-Fernández R, de Vries F, Lalmohamed A, Bazelier M, Starup-Linde J, Díez-Pérez A, Cooper C, Vestergaard P. HIV infection and its association with an excess risk of clinical fractures and : a nation-wide case-control study. *JAIDS-J Acq Immun Def Synd* 2014;66(1):90-95. IF 4.394. Q1.
- Prieto-Alhambra D, Pagès-Castellà A, Wallace G, Javaid MK, Judge A, Nogués X, Arden NK, Cooper C, Díez-Pérez A. Predictors of fracture while on treatment with oral bisphosphonates: A population-based cohort study. *J Bone Miner Res* 2014;29(1):268-274. IF 6.589. Q1.
- Prieto-Alhambra D, Premaor MO, Fina F, Soria A, Javaid MK, Nogués X, Arden NK, Cooper C, Compston JE, Díez-Pérez A. Relationship Between Mortality and BMI After Fracture: A Population-Based Study of Men and Women Aged ≤40 Years. *J Bone Miner Res* 2014;29(8):1737-1744. IF 6.589. Q1.
- Reyes C, Estrada P, Nogués X, Orozco P, Cooper C, Díez-Pérez A, Formiga F, González-Macías J, Prieto-Alhambra D. The impact of common co-morbidities

(as measured using the Charlson index) on hip fracture risk in elderly men: a population-based cohort study. *Osteoporosis Int* 2014;25(6):1751-1758. IF 4.165. Q1.

- Sarrion P, Mellibovsky L, Urreizti R, Civit S, Cols N, García-Giralt N, Yoskovitz G, Aranguren A, Malouf J, Di Gregorio S, del Rio L, Güerri-Fernández R, Nogués X, Díez-Pérez A, Grinberg D, Balcells S. Genetic Analysis of High Bone Mass Cases from the BARCOS Cohort of Spanish Postmenopausal Women. *PLoS ONE* 2014;9(4):e94607. IF 3.534. Q1.

Ongoing Research Projects 2014

- Determinantes clínicos y genéticos de eventos musculoesqueléticos en mujeres posmenopáusicas tratadas con inhibidores de la aromatasa por cáncer de mama. Cohorte prospectiva B-ABLE
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/00444)
 - > Principal researcher: Nogués Solan, Francesc Xavier
- Identificación de dianas terapéuticas para la formación ósea: regulación de la expresión génica por microRNAs
 - > Fondo de Investigación Sanitaria. ISCIII (PI13/00116)
 - > Principal researcher: Díez Pérez, Adolf

- Riesgo-beneficio de los bisfosfonatos en los pacientes con osteoporosis e insuficiencia renal
 - > Fondo de Investigación Sanitaria. ISCIII (ICh14/00248)
 - > Principal researcher: Díez Pérez, Adolf

Participation in Research Networks

- RETICEF: Red Temática de Investigación Cooperativa en Envejecimiento y Fragilidad
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS (RD06/0013/1009)
 - > Principal researcher: Díez Pérez, Adolf
- Red Temática de Investigación Cooperativa en Envejecimiento y Fragilidad
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS (RD12/0043/0022)
 - > Principal researcher: Díez Pérez, Adolf

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Unitat de Recerca en Fisiopatología Òssia i Articular. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 775)
 - > Principal researcher: Nogués Solan, Francesc Xavier

Clinical Trials Signed in 2014

- Observational: 1 (2014/5852)

Myogenesis, Inflammation and Muscle Function

RESEARCH GROUP

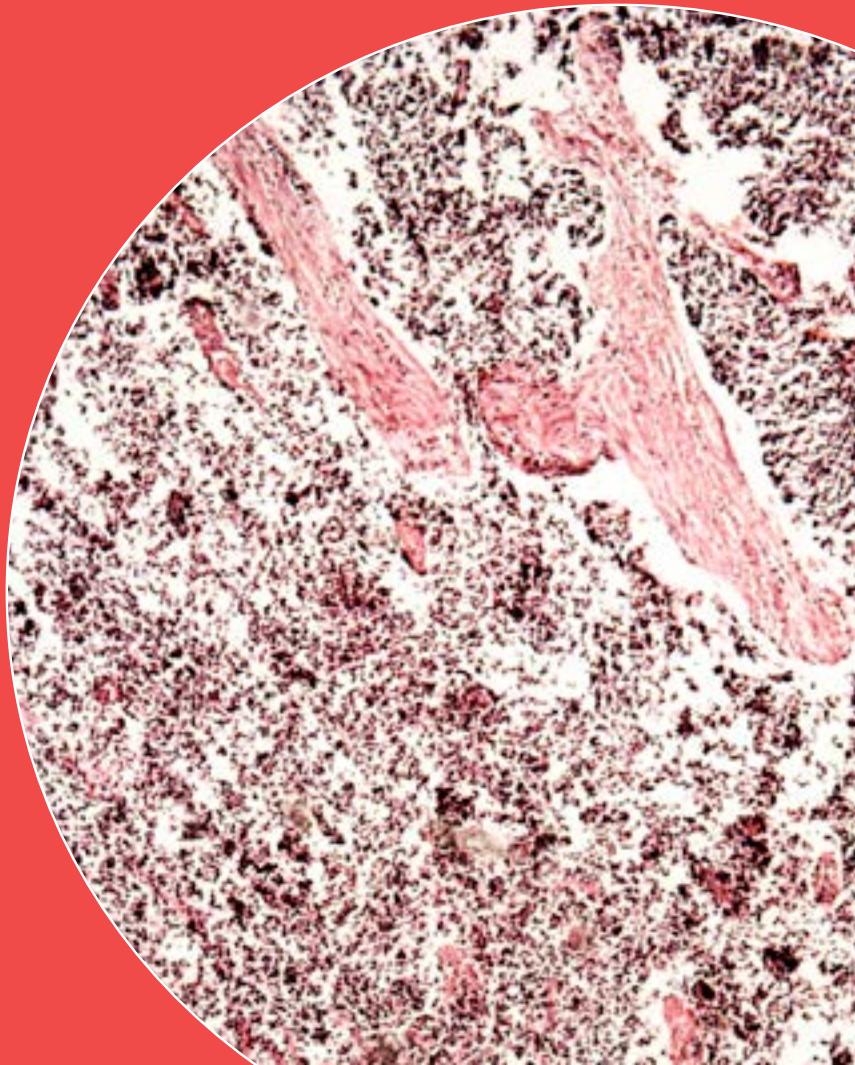


Coordinator

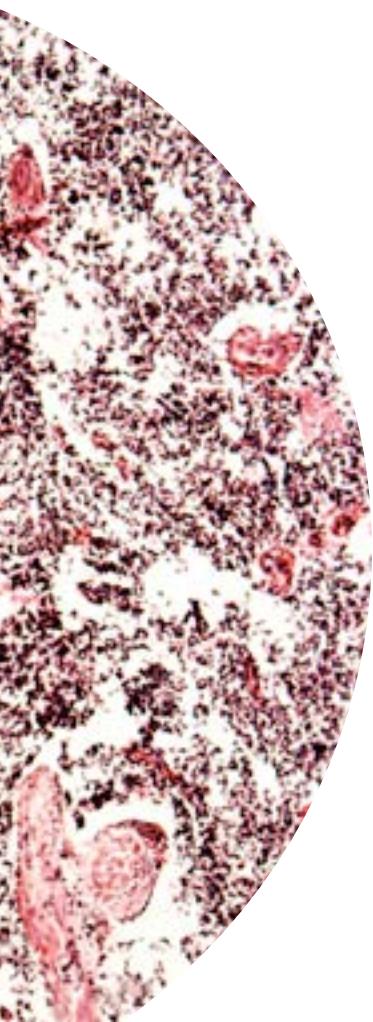
Joaquim Gea Guiral

Members

Mireia Admetlló Papiol
Elia Aracil Celada
Pilar Ausín Herrero
Ana Balañá Corberó
Eva Balcells Vilarnau
Carme Casadevall Fusté
Beatriz Casado Guerra
Antoni Ferrer Montreal
Esther Garrido Pedregal
Helena Giménez Palau
Juana María Martínez Llorens
Josep Oriol Pallás Villaronga
Sergi Pascual Guardia
Esther Puig Vilanova
Diego Agustín Rodríguez



Our ongoing research is focused on the role played by proinflammatory cytokines as signaling molecules in the repairing-remodeling processes in muscles of patients with different processes with a relevant systemic inflammatory component, which have in common muscle dysfunction and/or loss of muscle mass. The strategic outcome is to identify potential molecular targets of therapies for treating muscle dysfunction and muscle cachexia. Our research focuses mainly on lung diseases such as Chronic Obstructive Pulmonary Disease (COPD) and lung cancer, but also muscle problems in aging, fibromyalgia and scoliosis and includes clinical assessment, *in vivo* and *in vitro* physiological studies, and molecular biology procedures.





Main Publications 2014

- Domínguez-Álvarez M, Sabaté M, Vilà M, Gálvez B, Álvarez FJ, Casadevall C, Gea J, Barreiro E. Molecular and physiological events in respiratory muscles and blood of rats exposed to inspiratory threshold loading. *Transl Res* 2014; 163(5):478-493. IF 4.044. Q1.
- Gimeno-Santos E, Rodríguez DA, Barberán A, Blanco I, Vilaró J, Torralba Y, Rodríguez-Roisin R, Barberà JA, Roca J, García-Aymerich J. Endurance exercise training improves heart rate recovery in patients with COPD. *COPD* 2014; 11(2):190-196. IF 2.62. Q2.
- Maltais F, Decramer M, Casaburi R, Barreiro E, Burelle Y, Debigaré R, Dekhuijzen R, Franssen F, Gayan-Ramirez G, Gea J, Gosker HR, Gosselink R, Hayot M, Hussain SNA, Janssens W, Polkey MI, Roca J, Saey D, Schols AMWJ, Spruit MA, Steiner M, Taivassalo T, Troosters T, Vogiatzis I, Wagner PD, on behalf of the ATS/ERS Ad Hoc Committee on Limb Muscle Dysfunction in COPD. An official american thoracic society/european respiratory society statement: update on limb muscle dysfunction in chronic obstructive pulmonary disease. *Am J Respir Crit Care Med* 2014; 189(9): e15-e62. IF 11.986. Q1.
- Puig-Vilanova E, Aguiló R, Rodríguez-Fuster A, Martínez-Llorens J, Gea J, Barreiro E. Epigenetic mechanisms in respiratory muscle dysfunction of patients with chronic obstructive pulmonary disease. *PLoS ONE* 2014; 9(11):e111514. IF 3.534. Q1.
- Puig-Vilanova E, Ausin P, Martínez-Llorens JM, Gea J, Barreiro E. Do epigenetic events take place in the vastus lateralis of patients with mild chronic obstructive pulmonary disease?. *PLoS ONE* 2014; 9(7): e102296. IF 3.534. Q1.
- Ramon MA, Gimeno-Santos E, Ferrer J, Balcells E, Rodríguez E, de Batlle J, Gómez FP, Sauleda J, Ferrer A, Barberà JA, Agustí A, Gea J, Rodríguez-Roisin R, Antó JM, García-Aymerich J; PAC-COPD Study Group. Hospital admissions and exercise capacity decline in patients with COPD. *Eur Respir J* 2014;43(4):1018-27. IF 7.125. Q1.
- Rodríguez DA, García-Aymerich J, Valera JL, Sauleda J, Togores B, Galdiz JB, Gea J, Orozco-Levi M, Ferrer A, Gómez FP, Barberà JA, Serra I, Antó JM, Roca J; PAC-COPD Study Group. Determinants of exercise capacity in obese and non-obese COPD patients. *Respir Med* 2014; 108(5):745-51. IF 2.917. Q2.

- Rodríguez E, Ferrer J, Zock JP, Serra I, Antó JM, de Batlle J, Kromhout H, Vermeulen R, Donaire-González D, Benet M, Balcells E, Monsó E, Gayete A, García-Aymerich J; PAC-COPD Study Group. Lifetime occupational exposure to dusts, gases and fumes is associated with bronchitis symptoms and higher diffusion capacity in COPD patients. PLoS ONE 2014; 9(2): e88426. IF 3.534. Q1.

Ongoing Research Projects 2014

- Estadificación molecular del cáncer de pulmón: inflamación y señalización
 - > Fondo de Investigación Sanitaria. ISCIII (PI12/02534)
 - > Principal researcher: Ausin Herrero, Pilar
- Papel de TNF- α en la regulación de la capacidad regenerativa muscular de sujetos sanos y de pacientes con EPOC
 - > Ministerio de Ciencia e Innovación (SAF2011-26908)
 - > Principal researcher: Gea Guiral, Joaquim

Clinical Trials Signed in 2014

- Phase II studies: 1 (2014/5611)
- Phase III studies: 10 (2013/5238, 2013/5083, 2013/5188, 2013/5182, 2013/5238, 2014/5563, 2014/5647, 2014/5572, 2014/5725, 2014/5564)

Other

- Joaquim Gea, PhD MD. Member of Management Council of the European Board for Accreditation in Pneumology (EBAP). December 2014.
- Joaquim Gea, PhD MD. Director of V Curs de Malaltia Pulmonar Obstructiva Crònica (MPOC) per a Metges d'Assistència Primària. Servei de Pneumologia, Hospital del Mar-PSMAR. Barcelona, 7-14 October 2014.
- Joaquim Gea, PhD MD. Director of I Curs d'Actualització en Salut Respiratòria, Hospital del Mar - Pompeu Fabra University. Barcelona, 9 May 2014.

Neuro-Enteric Translational Science Research

RESEARCH GROUP



Coordinator

Sílvia Delgado Aros

Members

Maria del Carmen Alonso Romera

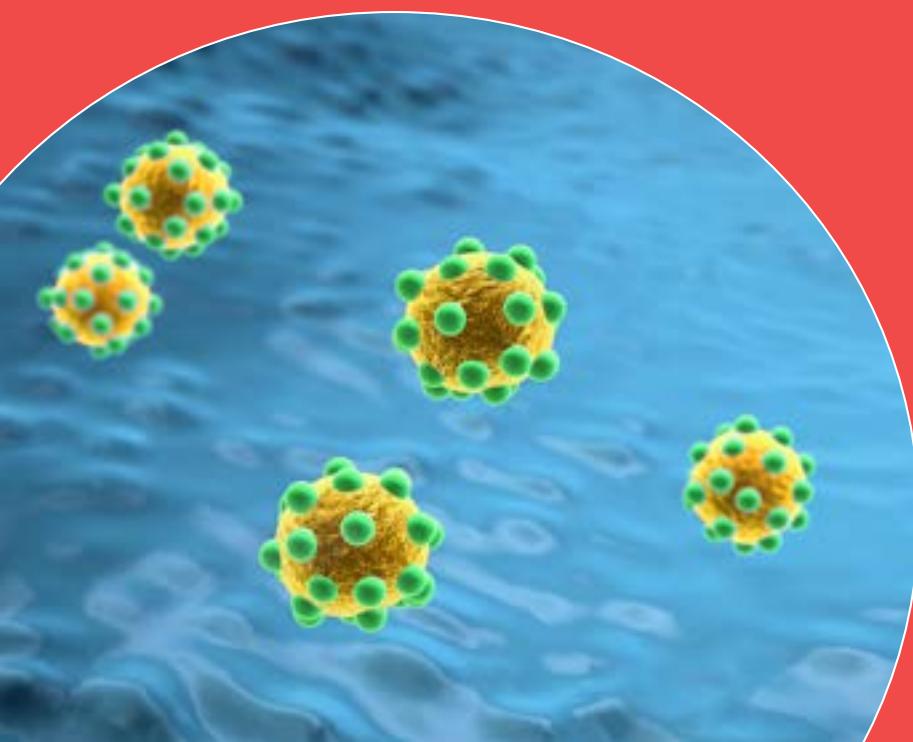
Jenny Rosario Haya Hidalgo

Inés Ana Ibáñez Zafón

Irene Martín Muñoz

The group is broadly interested in the study of the brain-gut axis, which includes all mechanisms, systems and structures that participate in the control of gut function and also influence, in a bidirectional mode, brain function. These include neural, immune, endocrine and microbiotic systems within the gut. We are currently focused on two lines:

1. Satiation/obesity: the study of brain-gut mechanisms that control human satiation and weight.
2. Neurological bowel disease & neuromodulation: the study of neurological gut malfunction and assessing the impact of neuromodulation on gastrointestinal functions.



Main Publications 2014

- Gras-Miralles B, Haya J, Ramon-Moros JM, Goday A, Torrà S, Ilzarbe L, Muñoz-Galitó J, Ibáñez-Zafón I, Alonso MC, Parri A, Bory F, Andreu M, Delgado-Aros S. Caloric Intake Capacity as Measured by a Standard Nutrient Drink Test Helps to Predict Weight Loss after Bariatric Surgery. *Obes Surg* 2014;24(12):2138-2144. IF 3.739. Q1.

Ongoing Research Projects 2014

- Proposal to improve Neurogenic Bowel Dysfunction and related Quality of Life outcomes in subjects with brain or spinal cord injury
 - > Fundació La Marató de TV3 (111910)
 - > Principal researcher: Delgado Aros, Sílvia

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Translacional en Gastroenterología. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 443)
 - > Principal researcher: Andreu García, Montserrat

Clinical Trials Signed in 2014

- Phase III b studies: 1 (2013/5319)

Other

- Delgado Aros S. Member of the Scientific Committee of the Societat Catalana de Digestologia (SCD)
- Delgado Aros S. Member of the Board of Directors of the Grupo Español de Motilidad Digestiva (GEMD)
- Delgado Aros S. Member of the Board of Directors of the Asociación Española de Gastroenterología (AEG)

Neurovascular

RESEARCH GROUP

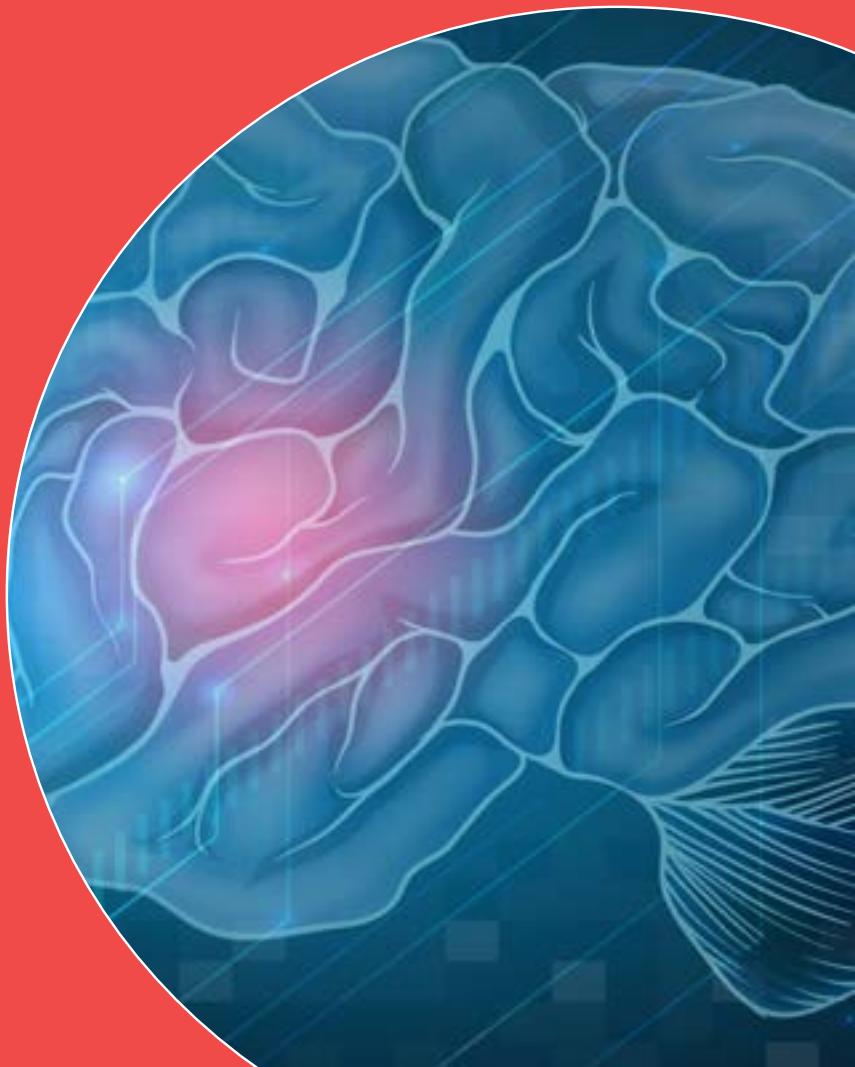


Coordinator

Jaume Roquer González

Members

Elisa Cuadrado Godia
Eva Giralt Steinhauer
Jordi Jiménez Conde
Marina Mola Caminal
Ángel Javier Ois Santiago
Lluís Planellas Gine
Alessandro Principe
Ana María Rodríguez Campello
Gemma Romeral Ballester
Miguel Ángel Rubio Pérez
Carolina Soriano Tárrega
Rosa María Vivanco Hidalgo





This is a clinical group involved in stroke research. Currently our group is included in the Red de Investigación Cardiovascular (RIC), which is one of the main Spanish research networks. The strengths of our group are: first, our ongoing database named BASICMAR, which contains extensive demographic, epidemiological, clinical, and outcome data relating to all stroke patients ($n=5800$) admitted to our hospital, and second, our large collection of blood samples from stroke

patients for genetic and biomarkers studies ($n=4000$). The two main research lines are:

1. Clinical research and biomarkers in stroke: Epidemiology, natural history and vascular risk factors, stroke biomarkers, diet and stroke (REHANIM), neurosonology and neuro-imaging.
2. Genetic and stroke research: Our unit is part of the International Stroke Genetics Consortium, which includes many international (USA, Europe) and national groups working to develop GWAS and EWAS studies and projects.



Main Publications 2014

- Ay H, Arsava EM, Andsberg G, Benner T, Brown RD Jr, Chapman SN, Cole JW, Delavaran H, Dichgans M, Engström G, Giralt-Steinhauer E, Grewal RP, Gwinn K, Jern C, Jiménez-Conde J, Jood K, Katsnelson M, Kissela B, Kittner SJ, Kleindorfer DO, Labovitz DL, Lanfranconi S, Lee JM, Lehm M, Lemmens R, Levi C, Li L, Lindgren A, Markus HS, McArdle PF, Melander O, Norrving B, Peddareddygarri LR, Pedersén A, Pera J, Rannikmäe K, Rexrode KM, Rhodes D, Rich SS, Roquer J, Rosand J, Rothwell PM, Rundek T, Sacco RL, Schmidt R, Schürks M, Seiler S, Sharma P, Slowik A, Sudlow C, Thijs V, Woodfield R, Worrall BB, Meschia JF. Pathogenic Ischemic Stroke Phenotypes in the NINDS-Stroke Genetics Network. *Stroke* 2014;45(12):3589-3596. IF 6.018. Q1.
- Giralt-Steinhauer E, Jiménez-Conde J, Soriano Tárraga C, Mola M, Rodríguez-Campello A, Cuadrado-Godia E, Ois A, Fernández-Cádenas I, Carrera C, Montaner J, Díaz Navarro RM, Vives-Bauzá C, Roquer J. Exploring the genetic basis of stroke. Spanish stroke genetics consortium. *Neurología (Barc)* 2014;29(9):560-566. IF 1.352. Q4.
- McArdle PF, Kittner SJ, Ay H, Brown RD Jr, Meschia JF, Rundek T, Wassertheil-Smoller S, Woo D, Andsberg G, Biffi A, Brenner DA, Cole JW, Corriveau R, de Bakker PI, Delavaran H, Dichgans M, Grewal RP, Gwinn K, Huq M, Jern C, Jiménez-Conde J, Jood K, Kaplan RC, Katschnig P, Katsnelson M, Labovitz DL, Lemmens R, Li L, Lindgren A, Markus HS, Peddareddygarri LR, Pedersén A, Pera J, Redfors P, Roquer J, Rosand J, Rost NS, Rothwell PM, Sacco RL, Sharma P, Slowik A, Sudlow C, Thijs V, Tiedt S, Valenti R, Worrall BB; NINDS SiGN Study. Agreement between TOAST and CCS ischemic stroke classification: The NINDS SiGN Study. *Neurology* 2014;83(18):1653-1660. IF 8.303. Q1.
- Rodríguez-Campello A, Jiménez-Conde J, Ois Á, Cuadrado-Godia E, Giralt-Steinhauer E, Schroeder H, Romeral G, Llop M, Soriano-Tárraga C, Garralda-Anaya M, Roquer J. Dietary habits in patients with ischemic stroke: a case-control study. *PLoS ONE* 2014;9(12):e114716. IF 3.534. Q1.
- Roquer J, Rodríguez-Campello A, Cuadrado-Godia E, Giralt-Steinhauer E, Jiménez-Conde J, Dégano IR, Ois A.

- Ischemic stroke in prediabetic patients. *J Neurol* 2014;261(10):1866-70. IF 3.841. Q1.
- Roquer J, Rodríguez-Campello A, Cuadrado Godia E, Giralt Steinhauer E, Jiménez Conde J, Soriano C, Ois A. The role of HbA1c determination in detecting unknown glucose disturbances in ischemic stroke. *PLoS ONE* 2014;9(12):e109960. IF 3.534. Q1.
 - Soriano-Tárraga C, Jiménez-Conde J, Giralt-Steinhauer E, Mola M, Ois A, Rodríguez-Campello A, Cuadrado-Godia E, Fernández-Cadenas I, Carrera C, Montaner J, Elosua R, Roquer J; on behalf of GeneStroke; “The Spanish Stroke Genetics Consortium”. Global DNA methylation of ischemic stroke subtypes. *PLoS ONE* 2014;9(4):e96543. IF 3.534. Q1.
 - Woo D, Falcone GJ, Devan WJ, Brown WM, Biffi A, Howard TD, Anderson CD, Brouwers HB, Valant V, Battey TWK, Radmanesh F, Raffeld MR, Baedorf-Kassis S, Deka R, Woo, JG, Martin LJ, Haverbusch M, Moomaw CJ, Sun G, Broderick JP, Flaherty ML, Martini SR, Kleindorfer DO, Kissela BM, Comeau ME, Jagiella JM, Schmidt H, Freudenberger P, Pichler A, Ennzinger C, Hansen BM, Norrving B, Jiménez-Conde J, Giralt-Steinhauer E, Elosua R, Cuadrado-Godia

E, Soriano C, Roquer J, Kraft P, Ayres AM, Schwab K, McCauley JL, Pera J, Urbanik A, Rost NS, Goldstein JN, Viswanathan A, Stogerer EM, Tirschwell DL, Selim M, Brown DL, Silliman SL, Worrall BB, Meschia JF, Kidwell CS, Montaner J, Fernández-Cadenas I, Delgado P, Malik R, Dichgans M, Greenberg SM, Rothwell PM, Lindgren A, Slowik A, Schmidt R, Clangefeld CD, Rosand J. Meta-Analysis of Genome-Wide Association Studies Identifies 1q22 as a Susceptibility Locus for Intracerebral Hemorrhage. *Am J Hum Genet* 2014;94(4):511-521. IF 10.987. Q1.

Ongoing Research Projects 2014

- Bases genéticas de la leucoaraiosis. Estudio de Genome Wide Association en población española. Consorcio Español de Genética del Ictus (Genestroke)
 - > Fondo de Investigación Sanitaria. ISCIII (PI10/02064)
 - > Principal researcher: Jiménez Conde, Jordi
- GODS project: Genetic contribution to functional Outcome and Disability after Stroke
 - > Fundació La Marató de TV3 (12030)
 - > Principal researcher: Jiménez Conde, Jordi



Inflammatory and Cardiovascular Disorders

Neurovascular

- Epigenética en el riesgo de ictus. Estudio de Epigenome Wide Association en los subtipos etiológicos de ictus isquémico. Consorcio Español de Genética del Ictus (Genestroke)
 - > Fondo de Investigación Sanitaria. ISCIII (PI12/01238)
 - > Principal researcher: Roquer González, Jaume
- MENEAS: MEthylation of DNA depending on Nutrition and Exercise habits. Developing a marker of “biologicalAge” and risk of stroke
 - > Recercaixa (JJ086116)
 - > Principal researcher: Jiménez Conde, Jordi

Participation in Research Networks

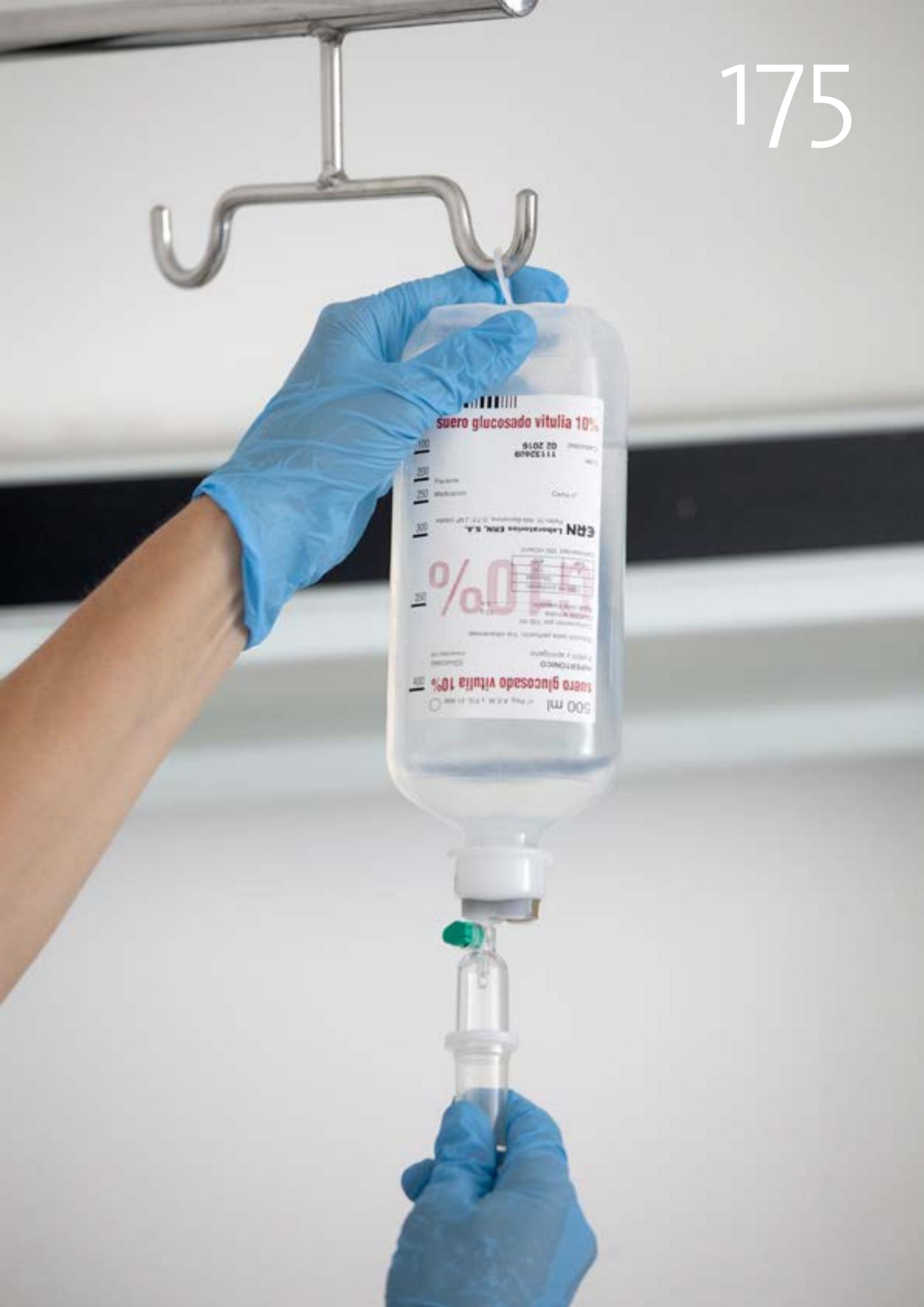
- Red Cardiovascular
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS (RD12/0042/0020)
 - > Principal researcher: Roquer González, Jaume

Group's Recognitions

- Officially recognized as a consolidated research group the Generalitat de Catalunya: Grup de Recerca Neurovascular (NEUVAS). 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 1213)
 - > Principal researcher: Roquer González, Jaume

Clinical Trials Signed in 2014

- Phase II studies: 1 (2013/5449)
- Phase III studies: 4 (2013/5405, 2013/5407, 2014/5469, 2014/5858)
- Phase IV: (2013/5446)
- Observational studies: 1 (2014/5461)



Rehabilitation

RESEARCH GROUP



Coordinator

Esther Duarte Oller

Members

Roser Belmonte Martínez

Ferran Escalada Recto

Ester Marco Navarro

Monique Messaggi Sartor

Josep Maria Muniesa Portoles





The main scientific objectives of the group are to advance the knowledge of brain plasticity and motor recovery in stroke patients and to assess the effects of physical training on cardiovascular diseases, chronic respiratory diseases, cancer and ageing. The group also works in the development of Telerehabilitation systems applied to osteoarticular, neurological, pulmonary and cardiorespiratory diseases, encouraging interaction between basic and clinical sciences, and health services, with potential translational application, providing innovative and potentially effective treatment alternatives.



Main Publications 2014

- Amengual J, Münte T, Marco-Pallarés J, Rojo N, Grau-Sánchez J, Rubio F, Duarte E, Grau C, and Rodríguez-Fornells A. Overactivation of the supplementary motor area in chronic stroke patients. *J Clin Neurophysiol* 2014;112(9):2251-2263. IF 1.595. Q3.
- Bisbe E, Moltó L, Arroyo-Pérez R, Muniesa JM, Tejero M. Randomized trial comparing ferric carboxymaltose vs oral ferrous glycine sulphate for postoperative anaemia after total knee arthroplasty. *Br J Anaesth* 2014;113(3):402-409. IF 4.853. Q1.
- Bofill N, Belmonte R, Guillén-Solà A, Mellibovskty L. Chilitorax in the yellow nail syndrome. *Med Clin (Barcelona)* 2014;142(8):380. IF 1.252. Q3.
- Cáceres DI, Messagi-Sartor M, Rodríguez DA, Escalada F, Gea J, Orozco-Levi M, Marco E. Variability of body composition assessed by bioelectrical impedance: influence of fasting and resting. *Nutr Hosp* 2014;30(6):1359-1365. IF 1.25. Q4.
- Comin J, Verdú J, Vela E, Clèries M, Bustins M, Mendoza L, Badosa N,

Cladellas M, Ferré S, Bruguera J, on behalf of the Programa Integrat d'Atenció a la Insuficiència Cardíaca de l'Àrea Integral de Salut Barcelona Litoral Mar. Efficacy of an integrated hospital-primary care programme for heart failure: a population-based analysis of 56.742 patients. *Rev Esp Cardiol* 2014;67(4):283-293. IF 3.342. Q2.

- Miravittles M, Soler-Cataluña JJ, Calle M, Molina J, Almagro P, Quinta JA, Riesco JA, Trigueros JA, Piñera P, Simón A, Rodríguez-Hermosa JL, Marco E, López D, Coll R, Coll-Fernández R, Lobo MA, Díez J, Soriano JB, Ancochea J. Spanish Guideline for COPD (GesEPOC). Update 2014. *Arch Bronconeumol* 2014;50(supl.1):1-16. IF 1.816. Q3.
- Sánchez-Rodríguez D, Marco E, Miralles R, Fayos M, Mojáil S, Alvarado M, Vázquez-Ibar O, Escalada F, Muniesa JM. Sarcopenia, physical rehabilitation and functional outcomes of patients in a subacute geriatric care unit. *Arch Gerontol Ger* 2014;59(1):39-43. IF 1.525. Q3.

Ongoing Research Projects 2014

- Efectos sobre la marcha del uso repetido de la toxina botulínica tipo A sin proteínas complejantes en el pie equino varoespástico del adulto: ensayo clínico aleatorizado
 - > SERMEF
 - > Principal researcher: Duarte Oller, Esther
- Estudio “RETORNUS”: entrenamiento dual para restaurar la función de los músculos respiratorios en pacientes con ictus
 - > Fondo de Investigación Sanitaria. ISCIII (PI10/01560)
 - > Principal researcher: Marco Navarro, Ester

Clinical Trials Signed in 2014

- Phase II studies: 1 (2014/5679)
- Observational studies: 1 (2013/5453)

Genetic Causes of Disease

ASSOCIATED RESEARCH GROUP



Coordinator

Xavier Estivill Pallejà

Members

Laura Domènech Salgado
Georgia Escaramís Babiano
Marc Friedländer
Anna Jacoba Houben
Eulàlia Martí Puig
Marta Morell Oriol
Joan Pallarès Albanell
Aparna Prasad
Anna Puig Solà
Raquel Rabionet Janssen
Yaris Sarria Trujillo
M. Teresa Zomeño Abellán



Our lab performs experimental and bioinformatics research in medical genomics. The group explores how different types of genetic variants contribute to human diseases, mostly neuropsychiatric, neurodegenerative and inflammatory disorders. The interaction of genetic factors with environmental conditions is one of the main areas of research of the group and is addressed by integrating epidemiological and clinical data with genetics

information. This interaction can be evaluated through a longitudinal approach in the clinical course of each human disorder. We study very well characterized cohorts of patients and use high-throughput genomic platforms and functional studies, including longitudinal investigations of patients at different time points and cohorts in which exposure to an environment has been monitored. Different activities of the group are coordinated towards translational and precision medicine.



More information at CRG:

<http://www.crg.eu/en/programmes-groups/genomics-and-disease>

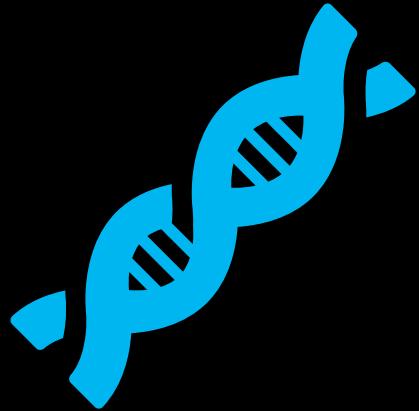


Publications 2014 in Collaboration with IMIM

Dr. Estivill published 18 scientific articles in 2014. Below you will find those in collaboration with IMIM.

- Boraska V, Franklin CS, Floyd JA, Thornton LM, Huckins LM, Southam L, Rayner NW, Tachmazidou I, Klump KL, Treasure J, Lewis CM, Schmidt U, Tozzi F, Kiezebrink K, Hebebrand J, Gorwood P, Adan RA, Kas MJ, Favaro A, Santonastaso P, Fernández-Aranda F, Gratacós M, Rybakowski F, Dmitrzak-Weglacz M, Kaprio J, Keski-Rahkonen A, Raevuori A, van Furth EF, Slof-Op 't Landt MC, Hudson JI, Reichborn-Kjennerud T, Knudsen GP, Monteleone P, Kaplan AS, Karwautz A, Hakonarson H, Berrettini WH, Guo Y, Li D, Schork NJ, Komaki G, Ando T, Inoko H, Esko T, Fischer K, Männik K, Metspalu A, Baker JH, Cone RD, Dackor J, Desocio JE, Hilliard CE, O'Toole JK, Pantel J, Szatkiewicz JP, Taico C, Zerwas S, Trace SE, Davis OS, Helder S, Bühren K, Burghardt R, de Zwaan M, Egberts K, Ehrlich S, Herpertz-Dahlmann B, Herzog W, Imgart H, Scherag A, Scherag S, Zipfel S, Boni C, Ramoz N, Versini A, Brandys MK, Danner UN, de Kovel C, Hendriks J, Koeleman BP, Ophoff RA, Strengman E, van Elburg AA, Bruson A, Clementi M, Degortes D, Forzan M, Tenconi E, Docampo E, Escaramís G, Jiménez-Murcia S, Lissowska J, Rajewski A, Szeszenia-Dabrowska N, Slopien A, Hauser J, Karhunen L, Meulenbelt I, Slagboom PE, Tortorella A, Maj M, Dedoussis G, Dikeos D, Gonidakis F, Tziouvas K, Tsitsika A, Papezova H, Slachtova L, Martaskova D, Kennedy JL, Levitan RD, Yilmaz Z, Huemer J, Koubek D, Merl E, Wagner G, Lichtenstein P, Breen G, Cohen-Woods S, Farmer A, McGuffin P, Cichon S, Giegling I, Herms S, Rujescu D, Schreiber S, Wichmann HE, Dina C, Sladek R, Gambaro G, Soranzo N, Julia A, Marsal S, Rabionet R, Gaborieau V, Dick DM, Palotie A, Ripatti S, Widén E, Andreassen OA, Espeseth T, Lundervold A, Reinvang I, Steen VM, Le Hellard S, Mattingdal M, Ntalla I, Bencko V, Foretova L, Janout V, Navratilova M, Gallinger S, Pinto D, Scherer SW, Aschauer H, Carlberg L, Schosser A, Alfredsson L, Ding B, Klareskog L, Padyukov L, Courtet P, Guillaume S, Jaussent I, Finan C, Kalsi G, Roberts M, Logan DW, Peltonen L, Ritchie GR, Barrett JC, Estivill X, Hinney A, Sullivan PF, Collier DA, Zeggini E, Bulik CM. A genome-wide association

- study of anorexia nervosa. *Mol Psychiatr* 2014;19(10):1085-1094. IF 15.147. Q1
- Docampo E, Escaramís G, Gratacòs M, Villatoro S, Puig A, Kogevinas M, Collado A, Carbonell J, Rivera J, Vidal J, Alegre J, Estivill X, Rabionet R. Genome-wide analysis of single nucleotide polymorphisms and copy number variants in fibromyalgia suggest a role for the central nervous system. *Pain* 2014;155(6):1102-1109. IF 5.836. Q1.
 - Friedländer M, Lizano E, Houben AJ, Bezdan D, Báñez-Coronel M, Kudla G, Mateu-Huertas E, Kagerbauer B, González J, Chen K, LeProust EM, Martí E, Estivill X. Evidence for the biogenesis of more than 1,000 novel human microRNAs. *Genome Biol* 2014;15(4):R57. IF 10.465.
 - Mateu-Huertas E, Rodríguez-Revenga L, Álvarez-Mora MI, Madrigal I, Willemsen R, Milá M, Martí E, Estivill X. Blood expression profiles of fragile X premutation carriers identify candidate genes involved in neurodegenerative and infertility phenotypes. *Neurobiol Dis* 2014;65:43-54. IF 5.202. Q1
 - Trujillano D, Pérez B, González J, Tornador C, Navarrete R, Escaramis G, Ossowski S, Armengol L, Cornejo V, Desviat LR, Ugarte M, Estivill X. Accurate molecular diagnosis of phenylketonuria and tetrahydrobiopterin-deficient hyperphenylalaninemias using high-throughput targeted sequencing. *Eur J Hum Genet* 2014;22(4):528-534. IF 4.225. Q1



Biomedical Informatics

The programme is made up of those research groups:

Evolutionary Genomics

Maria del Mar Albà

Integrative Biomedical Informatics

Laura Inés Furlong, Ferran Sanz

Systems Pharmacology

Jordi Mestres

The programme has two associated groups:

Computational Genomics

Roderic Guigó

Pharmacoinformatics

Manuel Pastor



The Research Programme on Biomedical Informatics (GRIB) is a joint research of the Hospital del Mar Medical Research Institute (IMIM) and the Department of Experimental and Health Sciences of the Pompeu Fabra University.

The mission of the GRIB is to develop and apply computational methods and information technologies for a better understanding and prediction of biological phenomena, placing special emphasis on those related to human diseases, their prevention, diagnosis and pharmacological treatment.

Ferran Sanz
Programme Director

GRIB is recognized and funded by the Autonomous Government of Catalonia and one of the centers of TECNIO, the Catalan Technological Innovation Network created by ACCIó, and it is also the node for Biomedical Informatics of the Spanish Institute of Bioinformatics (INB). Together with Farmaindustria, GRIB coordinates the Plataforma Tecnológica Española de Medicamentos Innovadores (PTEMI). GRIB also participates in the Bioinformatics Barcelona (BIB) platform, which aims to promote training, research, and technology transfer in bioinformatics. Ferran Sanz, GRIB's director, is the co-chair of PTEMI and the scientific director of BIB.

The GRIB is currently composed of more than 60 members, and includes four research groups led by scientists affiliated with IMIM:

- Evolutionary Genomics: focusing on the use of comparative genomics and large-scale data analysis to gain an understanding on the evolution of genes and genomes and to predict functional elements. Mar Albà, (ICREA) is the group leader.
- Systems Pharmacology: dedicated to developing and applying computational tools for the systematic identification of active molecules for therapeutically relevant target families. Jordi Mestres is the group leader.
- Pharmacoinformatics: focusing on the development and application of computational methodologies in the area of drug design. Manuel Pastor is the group leader and Jana Selent (Miguel Servet) is another senior scientist of this group.
- Integrative Biomedical Informatics: which promotes and tackles synergistic and integrative knowledge management strategies for facing complex biomedical problems. Laura I. Furlong (Miguel Servet) and Ferran Sanz are the leaders of this group.

The GRIB members' backgrounds are multidisciplinary: biologists, chemists, pharmacists, medical doctors, computer scientists, information specialists, etc. More than 30% of the members are postdoctoral researchers.

Most relevant issues in 2014 (corresponding to the IMIM members of GRIB)

- 56 international indexed publications, 93% of them in first quartile magazines, with an average impact factor of 7.4.
- GRIB faculty members have considerable experience in participating in and coordinating research projects funded by the European Commission. Some of the ongoing EC-funded projects are:
 - eTOX, on in-silico prediction of drug toxicities. GRIB is the academic coordinator of this project.
 - Open PHACTS, on knowledge discovery in pharmaceutical R&D using semantic web technology.
- Two additional EU-funded projects obtained in 2014 will start next year:
 - IPiE, aiming to develop a predictive framework for the environmental impact of drugs.

- MedBioinformatics, focusing on the application of bioinformatics in translational research and clinical practice. GRIB coordinates this project.
- Collaboration contracts with two international pharmaceutical companies: Roche Diagnostics GmbH and Sanofi Aventis Deutschland GmbH.
- Organization of international events in the field of bioinformatics:
 - European Medical Information Framework (EMIF) Colloquium, held on December 10, 2014, with more than 100 participants.
 - Debate on “Big Data in Biomedicine. Challenges and Opportunities”, organised jointly with BIB, the European Bioinformatics Institute (EMBL-EBI), Biocat and Fundació “la Caixa”, on November 11-12, 2014, with more than 200 participants.
 - GRIB EXPO, celebrated on November 10, 2014, with 90 participants.
 - GPRC Spring Conference on April 28-30, 2014, with more than 150 participants.
 - 7th Annual Conference of the Spanish Technological Platform of Biomedical Research, organised jointly with Farmaindustria on March 4-5, with more than 200 participants.

Evolutionary Genomics

RESEARCH GROUP



Coordinator

María del Mar Albà Soler
(ICREA Professor)

Members

William Robert Blevins
Jorge Ruiz Orera
José Luis Villanueva Cañas

The Evolutionary Genomics Group, led by Mar Albà, uses comparative genomics and large-scale data analysis to understand the complexity of gene regulation and evolutionary innovation. The group develops bioinformatics methods to predict functional elements in the genome and measure the influence of natural selection in shaping gene evolution. Some projects are performed in collaboration with experimental groups.



Main Publications 2014

- Gayà-Vidal M, Albà, MM. Uncovering adaptive evolution in the human lineage. *BMC Genomics* 2014;15(1):599. IF 4.041. Q1.
- Ruiz-Orera J, Messeguer X, Subirana JA, Albà MM. Long non-coding RNAs as a source of new peptides. *eLife* 2014;3:e03523. IF 8.519. Q1.
- Santpere G, Darre F, Blanco S, Alcami A, Villoslada P, Albà MM, Navarro A. Genome-wide analysis of wild-type Epstein-Barr virus genomes derived from healthy individuals of the 1,000 Genomes Project. *Genome Biol Evol* 2014;6(4):846-860. IF 4.532. Q1.
- Villanueva-Cañas JL, Faherty SL, Yoder AD, Albà MM. Comparative genomics of mammalian hibernators using gene networks. *Integr and Comp Biol* 2014;54(3):452-462. IF 2.969. Q1.

Ongoing Research Projects 2014

- Evolución de nuevas funciones génicas en genomas de mamíferos
 - > Ministerio de Economía y Competitividad (BFU2012-36820)
 - > Principal researcher: Albà Soler, Maria del Mar

Participation in Research Networks

- GRECO International Consortium for Gene Regulation Annotation, coordinated by Martin Kuiper and Astrid Lagreid (Norwegian University of Science and Technology).
- Iberian Lynx Sequencing Consortium, coordinated by José Antonio Godoy (Estación Zoológica Doñana-CSIC, Sevilla).

Other

- Grup de Recerca Reconegut Generalitat de Catalunya SGR 2014-2016
 - > Coordinator: Núria López-Bigas (UPF)

Integrative Biomedical Informatics

RESEARCH GROUP

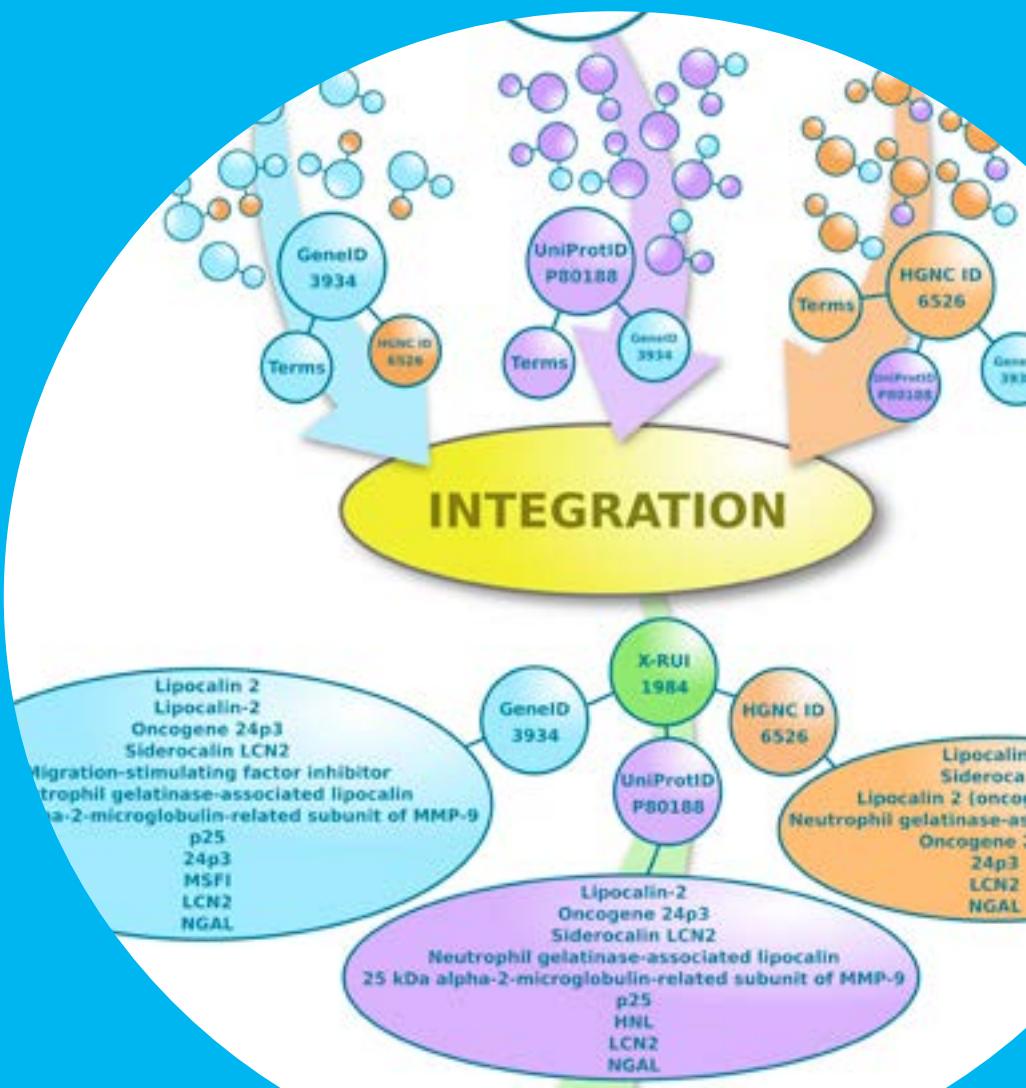


Coordinators

Laura Inés Furlong Nespolo
Ferran Sanz Carreras

Members

Àlex Bravo Serrano
Pau Carrió Gaspar
Montserrat Cases Amat
María Jesús Donlo Fernández
Alfons González Pauner
Solène Grosdidier
Oriol López Massaguer
Eric March Vila
María Inés Martínez Martínez
Carina Oliver Dutrem
Janet Piñero González
Núria Queralt Rosinach
María Saarela
Miguel Ángel Sánchez Gómez
Viktoria Szabo



The huge wealth of biomedical information that is currently available is underused because of the difficulties in seeking, integrating and analyzing the relevant information.

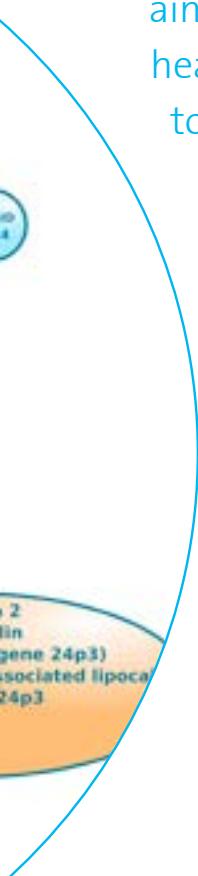
There is also great difficulty in the identification and use of clinically actionable information. The goal of the Integrative Biomedical Informatics (IBI) group is to develop computational methods and tools to address these challenges, with the aim of better understanding human health and disease and contributing to the design of more effective and safer therapeutic interventions.

The ongoing research lines of the IBI group are:

- New methods and tools for knowledge extraction and linkage from biomedical literature and other publicly available sources.

- Development of strategies for the research reuse of clinical data.
- Network biology for the study of human diseases and drug toxicity.
- Integrative knowledge management and exploitation in drug discovery and development.

Apart from its participation in several international projects, the group is currently coordinating two large-scale scientific initiatives, the IMI project eTOX – which integrates bioinformatics and chemoinformatics approaches for the development of expert systems allowing *in silico* prediction of drug toxicity – and the Horizon 2020 project MedBioinformatics – for the creation of medically-driven integrative bioinformatics applications focusing on oncology, CNS disorders and their comorbidities.



Main Publications 2014

- Bravo A, Cases M, Queralt-Rosinach N, Sanz F, Furlong LI. A Knowledge-Driven Approach to Extract Disease-Related Biomarkers from the Literature. *BioMed Res Int* 2014; 253128. IF 1.579. Q3.
- Carrió P, Pinto M, Ecker G, Sanz F, Pastor M. Applicability Domain Analysis (ADAN): A Robust Method for Assessing the Reliability of Drug Property Predictions. *J Chem Inf Model* 2014;54(5):1500-1511. IF 4.068. Q1.
- Cases M, Briggs K, Steger-Hartmann T, Pognan F, Marc P, Kleinöder T, Schwab CH, Pastor M, Wichard J, Sanz F. The eTOX Data-Sharing Project to Advance in Silico Drug-Induced Toxicity Prediction. *Int J Mol Sci* 2014;15(11):21136-21154. IF 2.339. Q2.
- Dumontier M, Baker CJO, Baran J, Callahan A, Chepelev L, Cruz-Toledo J, Del Rio NR, Duck G, Furlong LI, Keath N, Klassen D, McCusker JP, Queralt-Rosinach N, Samwald M, Villanueva-Rosales N, Wilkinson MD, Hoehndorf R. The Semanticscience Integrated Ontology (SIO) for biomedical research and knowledge discovery. *J Biomed Semantics* 2014;5(1):14. IF 2.262. Q1.
- Espinet B, Ferrer A, Bellosillo B, Nonell L, Salar A, Fernández-Rodríguez C, Puigdecanet E, Gimeno J, García-García M, Vela MC, Luño E, Collado R, Navarro JT, de la Banda E, Abrisqueta P, Arenillas I, Serrano C, Lloreta J, Miñana B, Cerutti A, Florensa L, Orfao A, Sanz F, Solé F, Domínguez-Solà D, Serrano S. Distinction between asymptomatic monoclonal B-cell lymphocytosis with cyclin D1 overexpression and mantle cell lymphoma: from molecular profiling to flow cytometry. *Clin Cancer Res* 2014;20(4):1007-1019. IF 8.193. Q1.
- Grosdidier S, Ferrer A, Faner R, Piñero J, Roca J, Cosío B, Agustí A, Gea J, Sanz F, Furlong LI. Network medicine analysis of COPD multimorbidities. *Respir Res* 2014;15(1):111. IF 3.382. Q2.
- Martí-Solano M, Birney E, Bril A, Della Pasqua O, Kitano H, Mons B, Xenarios I, Sanz F. Integrative knowledge management to enhance pharmaceutical R&D. *Nat Rev Drug Discov* 2014;13(4):239-240. IF 37.231. Q1.
- Martí-Solano M, Sanz F, Pastor M, Selent J. A dynamic view of molecular switch behavior at serotonin receptors: implications for functional selectivity. *PLoS ONE* 2014;9(10):e109312. IF 3.534. Q1.
- Selent J, Martí-Solano M, Rodríguez J, Atanes P, Brea J, Castro M, Sanz F, Loza MI, Pastor M. Novel insights on the

structural determinants of clozapine and olanzapine multi-target binding profiles.
Eur J Med Chem 2014;77C:91-95. IF 3.432. Q1.

Ongoing Research Projects

- eTOX: Integrating bioinformatics and chemoinformatics approaches for the development of expert systems allowing the *in silico* prediction of toxicities
 - > Innovative Medicines Initiative. IMI (115002)
 - > eTOX ENSO and AGAUR (LiderEU) complementary grants
 - > Principal researcher and coordinator of the applicants' consortium: Sanz Carreras, Ferran
- Open PHACTS: Open Pharmacological Concepts Triple Store
 - > Innovative Medicines Initiative. IMI (115191)
 - > Open PHACTS ENSO complementary grant
 - > Principal researcher: Sanz Carreras, Ferran
- iPiE: Intelligence Led Assessment of Pharmaceuticals in the Environment
 - > Innovative Medicines Initiative. IMI (JU-115735)
 - > Principal researcher: Sanz Carreras, Ferran
- MedBioinformatics: Creating medically-driven integrative bioinformatics applications focused on oncology, CNS disorders and their comorbidities
 - > European Commission. H2020 (PHC-32-2014-634143)
 - > Principal researcher and coordinator of the applicants' consortium: Sanz Carreras, Ferran

- Development of a computational approach for the study of the biological mechanisms underlying drug adverse reactions
 - > Fondo de Investigación Sanitaria. ISCIII (CP10/00524)
 - > Principal researcher: Furlong Nespolo, Laura I.
- MedSisCom: Medicina de sistemas para el estudio de las comorbilidades
 - > Fondo de Investigación Sanitaria. ISCIII (Pl13/00082)
 - > Principal researcher: Furlong Nespolo, Laura I.

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Biomedicina Computacional. 2014
 - > Agència de Gestió Ajuts Universitaris i de Recerca (SGR 1161)
 - > Principal researcher: Sanz Carreras, Ferran

Other

► Professional activities

- Ferran Sanz is academic coordinator of the Spanish Technology Platform on Innovative Medicines (PTEMI), coordinator of the Biomedical Informatics Node of the Spanish Institute

of Bioinformatics (INB) and scientific director of Bioinformatics Barcelona (BIB).

► Software development

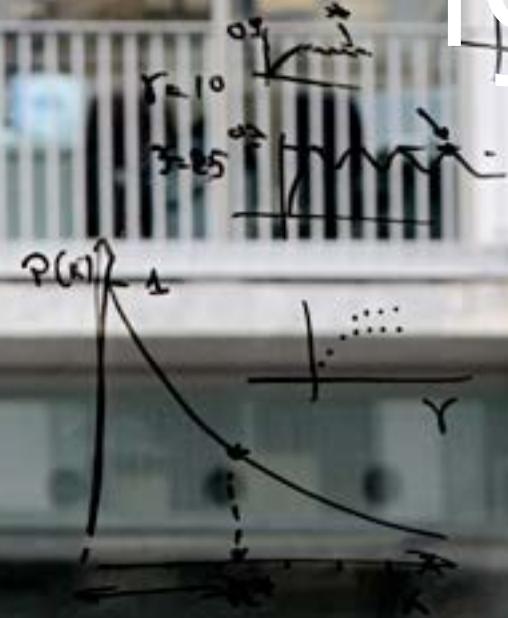
- DisGeNET is a discovery platform integrating information on gene-disease associations from several public data sources and the literature.
- BeFree is a text mining tool to unlock the information contained in biomedical documents.
- PsyGeNET (Psychiatric disorders Gene association NETwork) is a resource for the exploratory analysis of psychiatric diseases and their associated genes focused on three psychiatric disorders.
- eTOXlab is a platform for the easy development, maintenance and publication of QSAR models.

► Grants

- Ayuda para la contratación de doctores “Ramón y Cajal”
 - > Ministerio de Economía y Competitividad (10690)
 - > Principal researcher: Abel González
- Grant for H2020 proposals preparation
 - > Ministerio de Economía y Competitividad (EUIIN2013-50774)
 - > Principal researcher: Sanz Carreras, Ferran

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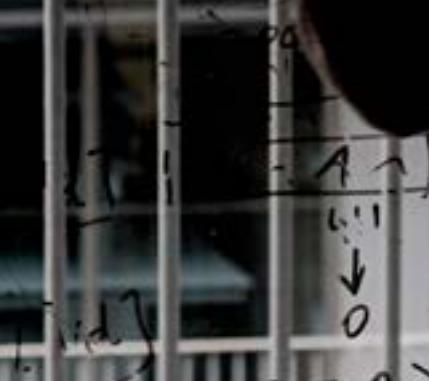
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Systems Pharmacology

RESEARCH GROUP

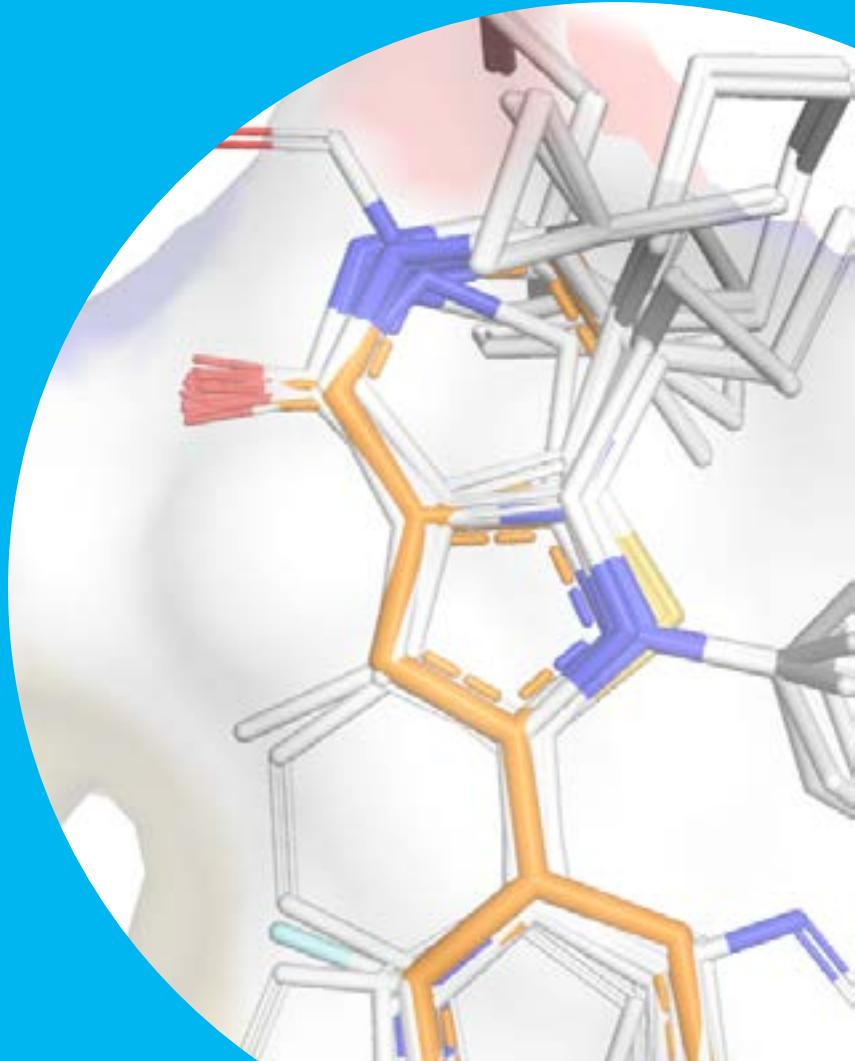


Coordinator

Jordi Mestres López

Members

Albert Antolín Hernández
M. Carmen Carrascosa Baena
Xavier Jalencas Giménez
Joaquim Olivés Farrés
Viktoria Szabo





The Systems Pharmacology group led by Jordi Mestres performs research at the interface between chemistry, biology, toxicology, medicine, and informatics, with focus being on the development of new computational methods and integrative biochemoinformatics tools directly applicable to drug design and discovery. Our aim is to facilitate access to and the efficient integration of the enormous amount of data available currently on the connections of both small molecules and proteins with other systemic entities (such as biological pathways, organs, side effects, and diseases, to name a few) in order to provide a twenty-first century systems view for medicinal chemistry.

Main Publications 2014

- Antolín AA, Mestres J. Linking off-target kinase pharmacology to the differential cellular effects observed among PARP inhibitors. *Oncotarget* 2014;5(10):3023-3028. IF 6.627. Q1.
- Antolín AA, Mestres J. The impact of distant polypharmacology in the chemical biology of PARPs. In: Janning P, Waldmann H, eds. *Concepts and Case Studies in Chemical Biology*. Weinheim: Wiley-VCH, 2014:309-322.
- García-Reyero N, Escalon BL, Prats E, Stanley JK, Thienpont B, Melby NL, Barón E, Eljarrat E, Barceló D, Mestres J, Babin PJ, Perkins EJ, Raldúa D. Effects of BDE-209 contaminated sediments on zebrafish development and potential implications to human health. *Environ Int* 2014;63:216-223. IF 5.664. Q1.
- Horvath D, Lisurek M, Rupp B, Kühne R, Specker E, von Kries JP, Rognan D, Andersson CD, Almqvist F, Elofsson M, Enqvist P-A, Gustavsson A-L, Remez N, Mestres J, Marcou G, Varnek A, Hibert M, Quintana J, Frank R. Design of a General-Purpose European Compound Screening Library for EU-OPENSCREEN. *ChemMedChem* 2014;9(10):2309-2326. IF 3.046. Q2.

- Spitzmüller A, Mestres J. Identification of host interactions for phenotypic antimalarial hits. *J Cheminform* 2014;6(supl.1):O12. IF 4.54. Q1.

Ongoing Research Projects 2014

- The chemical space of biological systems: coverage, completeness, mode of action, and evolutionary implications
 - > Ministerio de Ciencia e Innovación (BIO2011-26669)
 - > Principal researcher: Mestres López, Jordi
- Drugs4Rare: Identifying opportunities for drug repositioning in rare diseases
 - > Fondo de Investigación Sanitaria. ISCIII (IR11/DRUGS4RARE)
 - > Principal researcher: Mestres López, Jordi

Participation in Research Networks

- BACTITERed: Excellence network for the exploitation of bacteria as a source for new therapeutics
 - > Ministerio de Economía y Competitividad (SAF2014-56716-REDT)
 - > Principal researcher: Mestres López, Jordi

Other

► Ongoing Research Contracts 2014

- Novel 3D methodologies for predicting the target profile of small molecules
 - > Company: Sanofi
 - > Duration: 2 years

► Presentations at International Conferences

- Predicting the safety profile of small molecule pharmaceuticals and cosmeceuticals (invited lecture)
 - > 1rst International Congress: from Drug Discovery to Drug Delivery. Athens (Greece), 13-15 November 2014
 - > Presenter: Mestres López, Jordi
- The impact of polypharmacology on lead optimization (invited lecture)
 - > Conference: XXIVth International Symposium on Medicinal Chemistry. Lisboa (Portugal), 7-11 September 2014
 - > Presenter: Mestres López, Jordi
- Mapping the target space relevant to malaria drug discovery (invited lecture)
 - > Malaria Grand Challenges Meeting. Tres Cantos (Spain), 4 March 2014
 - > Presenter: Mestres López, Jordi

► Committee Members at International Conferences

- Member of the International Scientific Advisory Board
 - > XXIIIth International Symposium on Medicinal Chemistry. Lisboa (Portugal), 7-11 September 2014

► Editorial Responsibilities

- Editor of Molecular Informatics (www.molinf.com)
 - > Editorial: Wiley-VCH
- Member of the Editorial Board of Scientific Reports (www.nature.com/srep)
 - > Editorial: Nature Publishing Group

► Technology Transfer

- Founder and President of Chemotargets SL (www.chemotargets.com)

Computational Genomics

ASSOCIATED RESEARCH GROUP



Coordinator

Roderic Guigó Serra

Members

Amaya Abad Cacho

Estel Aparicio Prat

Alessandra Breschi

Carme Arnán Ros

Francisco Câmara

Juna Carlevaro

Joao Curado

Sarah Gaby Djebali

Àlex Esteban Franco

Rory Johnson

Julien Lagarde

Marco Mariotti

Marta Melé

Emilio Palumbo

Sílvia Pérez-Lluch

Dmitri Pervouchine

Ferran Reverter

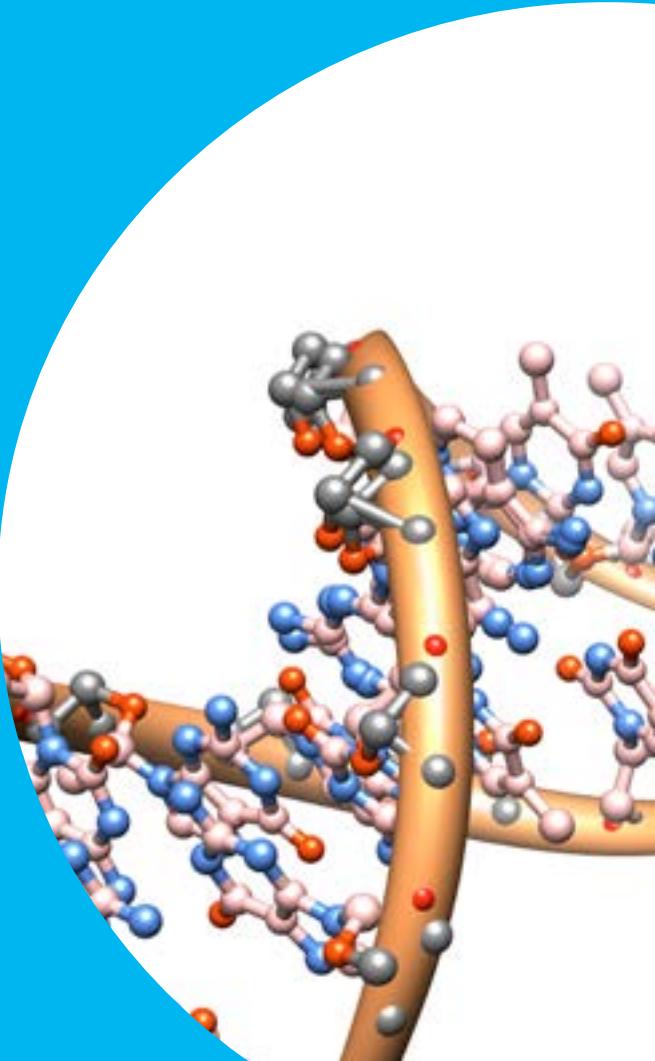
Didac Santesmasses

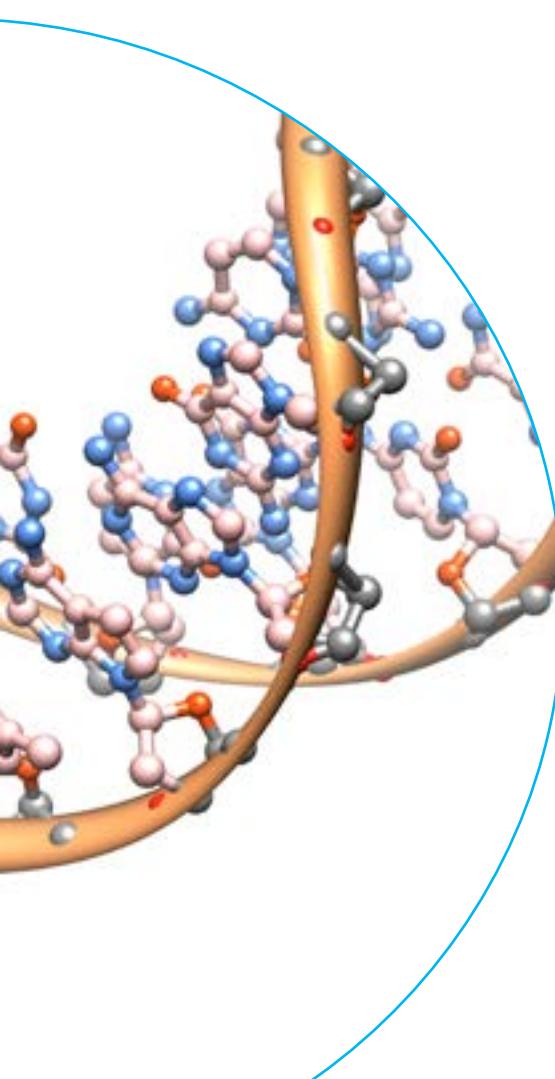
Reza Sodaei

Sebastian Ullrich

Barbara Uszczynska

Anna Vlasova





Research in the Computational Genomics group (http://big.crg.cat/bioinformatics_and_genomics) focuses on the investigation of the signals involved in gene specification in genomic sequences (promoter elements, splice sites, translation initiation sites, etc.). The group is interested both in the mechanism of their recognition and processing, and in their evolution. In addition, but related to this basic component of our research, the group is also involved in the development of software for gene prediction and annotation in genomic sequences. The group has actively participated in the analysis of many eukaryotic genomes, and in the last 10 years has participated in over 20 research projects, including large-scale genome projects such as ENCODE, ICGC, BluePrint and GTEx. The group is the Genomics node of the Spanish Instituto Nacional de Bioinformática.

Publications 2014 in Collaboration with IMIM

Dr. Guigó published 14 scientific articles in 2014. Below you will find those in collaboration with IMIM.

- Johnson R, Guigó R. The RIDL hypothesis: transposable elements as functional domains of long noncoding RNAs. *RNA* 2014;20(7):959-976. IF 4.622. Q1.

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Pharmacoinformatics

ASSOCIATED RESEARCH GROUP

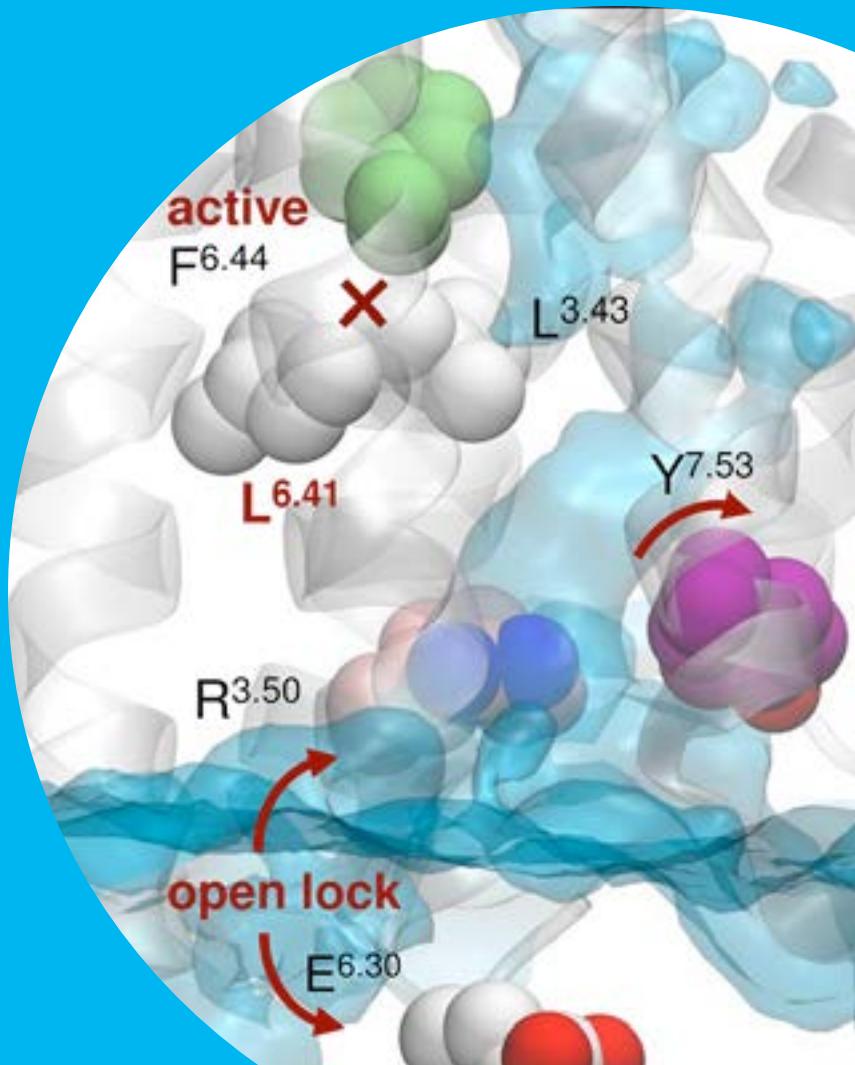


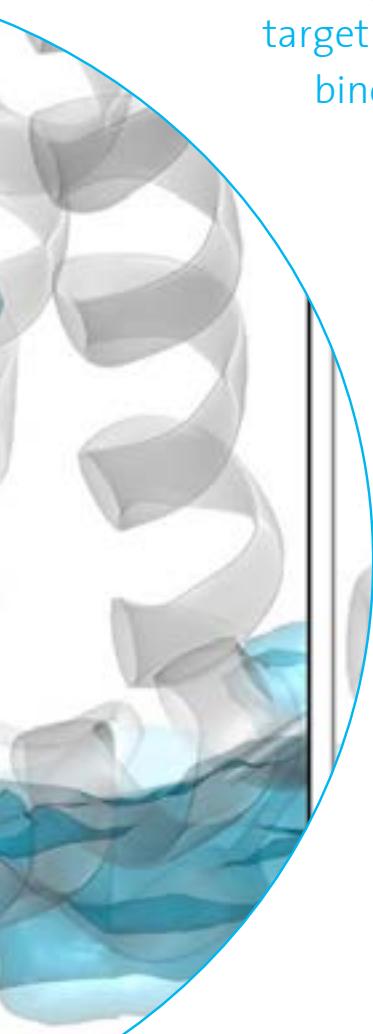
Coordinator

Manuel Pastor Maeso

Members

Núria Boada Centeno
Pau Carrió Gaspar
Ramón Guixà González
Oriol López Massaguer
Ismael Rodríguez Espigares
Jana Selent
Ismael Zamora Rico





The Pharmacoinformatics group works on the development and application of computational methodologies in the area of drug design and development.

Nowadays, computational methodologies are widely applied to many stages of drug discovery and development; from structural modeling of a pharmacological target to prediction of ligand binding affinity. However, in the vast majority of cases, the limitations of current technology allow us only to obtain approximate

representations of the complex biological phenomena that are the focus of interest in the development of new drugs.

The Pharmacoinformatics group aims to improve the current state of the art with a pragmatic approach. We want to develop useful tools that increase the efficiency of the pharmaceutical R&D process. At the same time, the need to produce robust models led us to go beyond reductionist approaches and to develop multi-scale methods, depicting richer and more realistic representations of the phenomena under study than those produced by classical computational methods.

Publications 2014 in Collaboration with IMIM

Dr. Pastor published 28 scientific articles in 2014. Below you will find those in collaboration with IMIM.

- Carrió P, Pinto M, Ecker G, Sanz F, Pastor M. Applicability Domain Analysis (ADAN): A Robust Method for Assessing the Reliability of Drug Property Predictions. *J Chem Inf Model* 2014; 54 (5): 1500-1511. IF 4.068. Q1.
- Cases M, Briggs K, Steger-Hartmann T, Pognan F, Marc P, Kleinöder T, Schwab CH, Pastor M, Wichard J, Sanz F. The eTOX Data-Sharing Project to Advance in Silico Drug-Induced Toxicity Prediction. *Int J Mol Sci* 2014;15(11):21136-21154. IF 2.339. Q2.
- Guixà-González R, Rodríguez-Espigares I, Ramírez-Anguita JM, Carrió-Gaspar P, Martínez-Seara H, Giorgino T, Selent J. MEMBPLUGIN: studying membrane complexity in VMD. *Bioinformatics* 2014;30(10):1478-1480. IF 4.621. Q1.
- Magnani F, Pappas CG, Crook T, Magafa V, Cordopatis P, Ishiguro S, Ohta N, Selent J, Bosnyak S, Jones ES, Gerothanassis IP, Tamura M, Widdop RE, Tzakos AG. Electronic Sculpting of Ligand-GPCR Subtype Selectivity: The Case of Angiotensin II. *ACS Chem Biol* 2014;9(7):1420-1425. IF 5.356. Q1.
- Martí-Solano M, Birney E, Bril A, Della Pasqua O, Kitano H, Mons B, Xenarios I, Sanz F. Integrative knowledge management to enhance pharmaceutical R&D. *Nat Rev Drug Discov* 2014;13(4):239-40. IF 37.231. Q1.
- Martí-Solano M, Sanz F, Pastor M, Selent J. A dynamic view of molecular switch behavior at serotonin receptors: implications for functional selectivity. *PLoS ONE* 2014;9(10):e109312. IF 3.534. Q1.
- Kaczor AA, Makarska-Bialokoz M, Selent J, de la Fuente R, Martí-Solano M, Castro M. Application of BRET for Studying G Protein-Coupled Receptors. *Min-Rev Med Chem* 2014;14(5):411-425. IF 3.186. Q2.
- Selent J, Martí-Solano M, Rodríguez J, Atanes P, Brea J, Castro M, Sanz F, Loza MI, Pastor M. Novel insights on the structural determinants of clozapine and olanzapine multi-target binding profiles. *Eur J Med Chem* 2014;77C:91-95. IF 3.432. Q1.

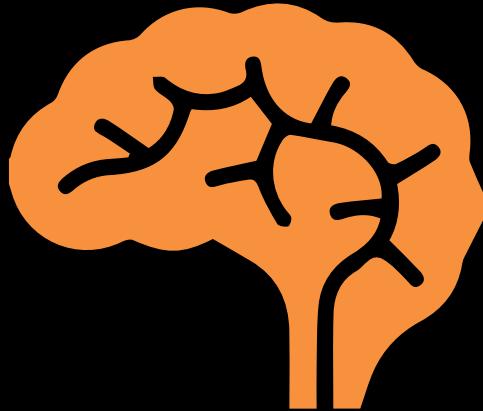
Ongoing Research Projects 2014 in Collaboration with IMIM

- eTOX: Integrating bioinformatics and chemoinformatics approaches for the development of expert systems allowing the *in silico* prediction of toxicities
 - > IMI JU-115002. European Commission - IMI Joint Undertaking
 - > IMI ENSO and AGAUR (LiderEU) complementary grants
 - > Principal researcher: Sanz Carreras, Ferran
- OpenPHACTS: An open, integrated and sustainable chemistry, biology and pharmacology knowledge resource for drug discovery
 - > European Commission – IMI Joint Undertaking. (MI JU-115191)
 - > IMI ENSO complementary grant
 - > Principal researcher: Sanz Carreras, Ferran
- Deciphering the molecular mechanism of Antipsychotic Drug Action
 - > Fondo de Investigación Sanitaria. ISCIII (CP12/03139)
 - > Principal researcher: Selent, Jana

More information:

<http://phi.imim.es/phi/>

<http://grib.imim.es/research/pharmacoinformatics/index.html>



PROGRAMME

Neurosciences

The programme is made up of the following research groups:

Addiction

Marta Torrens

Anxiety, Affective Disorders and Schizophrenia

Antonio Bulbena

Bioanalysis and Analytical Services

Jordi Segura

Childhood and Environment

Oriol Vall Combelles, Óscar García-Algar

Human Pharmacology and Clinical Neurosciences

Rafael de la Torre

Neurofunctionality of Brain and Language

Jordi Peña

Neuroimaging of Mental Disorders

Òscar Vilarroya

Noxas and Children

Antonio Mur

Perioperative Medicine

Lluís Gallart

The programme associated research groups are:

Behavioral Neurobiology

Olga Valverde

Genes and Diseases

Mara Dierssen

Genetics

Luis Alberto Pérez Jurado

Laboratory of Neuropharmacology

Rafael Maldonado

Rafael de la Torre

Programme Director



The mission of the Neurosciences Programme (NP) at the Hospital del Mar Medical Research Institute (IMIM) is to support basic and clinical research that will lead to a better understanding of mental and neurodegenerative illnesses.

The illnesses to be studied by the NP include:

- Addiction to drugs and the effects of their exposure in utero

- Emotional and psychiatric disorders (anxiety, depression, schizophrenia, ADHD)
- Chronic pain
- Diet-related disorders and their regulation by the nervous system
- Rare diseases that can cause intellectual disability

General Objectives

- To promote and support excellence in basic and clinical research, including co-morbidities with other health problems, and to provide opportunities for transversal and collaborative research with programmes from the IMIM and services from the Parc de Salut Mar.
- To encourage multidisciplinary research, including the opportunities offered within the framework of the IMIM at the Barcelona Biomedical Research Park (BBRP) in order to facilitate the transfer of knowledge and improve treatment and health services.
- To guarantee the promotion of holistic research among students and clinicians through their training in all aspects of neuroscience, mental health and addictions.

Specific Objectives

► Scientific

- To include improvement in treatment and health services amongst its medium/long-term objectives for all research projects.

- To take advantage of the multidisciplinary approach of the Programme (and of the BBRP) so that all researchers can create synergies to improve the excellence of the research objectives they are promoting.
- To pay special attention to the promotion of research into the areas of psychiatry and neurodegenerative diseases.
- To encourage translational research through the incorporation of young investigators who share this vision.
- To promote collaboration among consolidated research groups and emerging groups and investigators.

► Technical

- To promote the application of neuroimaging techniques in the majority of clinical studies.
- To promote the application of “omics” technologies, particularly those related to genetics (and the expression of genes, polymorphisms and epigenetics) in clinical studies.
- To encourage new opportunities for research into the identification of biomarkers, taking into account the potential of the programme for the

analysis of high-weight and low-weight compounds with chemical and biological methodologies.

► Educational

- To promote the incorporation of clinicians into research.
- To promote the incorporation of post-doctoral investigators of excellence into translational research projects.
- To maintain the programme's training capacity and the current ratio of pre-doctoral students, and to foster the obtaining of doctorates by assistant physicians.

Research Lines

- Integrated pharmacology of drugs of abuse.
- Development of animal models of genetic diseases and neuropsychiatric disorders.
- Neurobiology of addiction, pain and intellectual disabilities.
- Genes, endophenotypes and environmental factors associated with substances of abuse, neuropsychiatric disorders and intellectual disabilities.

- Nutrition, cognition and eating disorders.
- Neurofunctionality and language.

Principal Objectives 2014

- To apply for funding of translational research projects with multi-disciplinary research teams in order to improve the treatment and prevention of cardiovascular, metabolic, psychiatric and cognitive impairment diseases.
- To enroll young, highly qualified scientists from the Government Programme for the Promotion and Employability of Talent in RDI, Ramón y Cajal in Neurosciences
- To foster research in psychiatry by the incorporation of a new Mental Health Research Group headed by Dr. Víctor Pérez.
- To consolidate the Neurosciences sessions programme (held twice a month with speakers from and external to the BBRP).
- To maintain the accreditation of excellence in research (AGAUR) of research groups already accredited and the promotion of the accreditation of emerging groups.

- To consolidate cooperative research projects within the framework of Spanish research networks, such as CIBER and RETICS in mental health, rare diseases, obesity and nutrition, and addiction.
- To maintain our positioning regarding the training of doctoral students and master's degree final practice work.
- To increase our collaboration with the industry through the Government Programme RDI Aimed at Societal Challenges, and by co-development or development agreements of clinical studies, thus contributing to the application and marketing of the results of R&D.
- To apply to calls for grants aimed at encouraging research value and at mentoring for the creation of prototypes and proof of concept.
- To maintain the positioning of BAPP and Neurophar as TECNIO centers, and the renewal of the quality certificate UNE-EN ISO 9001, and to participate in the hiring of highly qualified research personnel through the TECNIOSPRING- fellowship programme.
- To maintain our positioning with respect to the diffusion of material in publications in the first decile.
- To explore new sources of funding, for instance, crowdfunding and platforms such as PRECIPITA from the FECYT.

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Addiction

RESEARCH GROUP



Coordinator

Marta Torrens Melich

Members

Mònica Astals Vizcaíno
Claudio Guillermo Castillo
Buenaventura
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Adriana Farré Martínez
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Clara Gibert Roura
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Roser Martínez Riera
Gerard Mateu Codina
Juan Ignacio Mestre Pintó
Álvaro José Palma Conesa
Paola Rossi
Judit Tirado Muñoz



This is a multidisciplinary team of health professionals (psychiatrists, psychologists, nurses, etc.) who share clinical, research and teaching activities. In the research area, the main aim is to study substance addiction from different perspectives to improve secondary prevention and treatment. Main lines of research are: clinical and therapeutic aspects of substance use disorders, infectious and psychiatric comorbidities in substance use disorders (dual diagnosis), new psychoactive drugs and gender differences.



Main Publications 2014

- Batalla A, Soriano-Mas C, López-Solà M, Torrens M, Crippa JA, Bhattacharyya S, Blanco-Hinojo L, Fagundo AB, Harrison BJ, Nogué S, de la Torre R, Farré M, Pujol J, Martín-Santos R. Modulation of brain structure by catechol-O-methyltransferase Val(158) Met polymorphism in chronic cannabis users. *Addict Biol* 2014;19(4):722-732. IF 5.929. Q1.
- Fonseca F, Gratacòs M, Escaramís G, de Cid R, Martín-Santos R, Farré M, Estivill X, Torrens M. ALDH5A1 variability in opioid dependent patients could influence response to methadone treatment. *Eur Neuropsychopharmacol* 2014;24(3):420-424. IF 5.395. Q1.
- Muga R, Rivas I, Faure E, Fuster D, Zuluaga P, Rubio M, Muñoz T, Torrens M, Tor J, Sanvisens A. Sex-specific disease outcomes of HIV-positive and HIV-negative drug users admitted to an opioid substitution therapy program in Spain: a cohort study. *BMC Infect Dis* 2014;14(1):504. IF 2.561. Q2.
- Papaseit E, Farré M, Schifano F, Torrens M. Emerging drugs in Europe. *Curr Opin Psychiatr* 2014;27(4):243-250. IF 3.551. Q1.
- Pujol J, Blanco-Hinojo L, Batalla A, López-Solà M, Harrison BJ, Soriano-Mas C, Crippa JA, Fagundo AB, Deus J, de la Torre R, Nogué S, Farré M, Torrens M, Martín-Santos R. Functional connectivity alterations in brain networks relevant to self-awareness in chronic cannabis users. *J Psychiat Res* 2014;51:68-78. IF 4.092. Q1.
- Roncero C, Comín M, Daigre C, Grau-López L, Martínez-Luna N, Eiroa-Orosa FJ, Barral C, Torrens M, Casas M. Clinical differences between cocaine-induced psychotic disorder and psychotic symptoms in cocaine-dependent patients. *Psychiatr Res* 2014;216(3):398-403. IF 2.682. Q2.
- Sanvisens A, Vallecillo G, Bolao F, Rivas I, Fonseca F, Fuster D, Torrens M, Pérez-Hoyos S, Pujol R, Tor J, Muga R. Temporal trends in the survival of drug and alcohol abusers according to the primary drug of admission to treatment in Spain. *Drug Alcohol Depend* 2014;136:115-120. IF 3.278. Q1.
- Tirado-Muñoz J, Gilchrist G, Farré M, Hegarty K, Torrens M. The efficacy of cognitive behavioural therapy and advocacy interventions for women who have experienced intimate partner violence: A systematic review and meta-analysis. *Ann Med* 2014;46(8):567-586. IF 4.733. Q1.
- Torrens M, Fonseca F. Role of ALDH5A1 in methadone treatment. *Pharmacogenomics* 2014;15(5):573-576. IF 3.425. Q1.

- Verdejo-García A, Contreras-Rodríguez O, Fonseca F, Cuenca A, Soriano-Mas C, Rodríguez J, Pardo-Lozano R, Blanco-Hinojo L, de Sola S, Farré M, Torrens M, Pujol J, de la Torre R. Functional alteration in frontolimbic systems relevant to moral judgment in cocaine-dependent subjects. *Addict Biol* 2014;19(2):272-281. IF 5.929. Q1.

Ongoing Research Projects 2014

- Bases neurobiológicas de la depresión inducida por sustancias de abuso: NEURODEP-2
 - > Fondo de Investigación Sanitaria. ISCIII (PI12/01838)
 - > Principal researcher: Torrens Melich, Marta
- Neurobiología de la depresión inducida por alcohol: NEURODEP-OH
 - > Ministerio de Sanidad y Política Social (2012l054)
 - > Principal researcher: Torrens Melich, Marta

Participation in Research Networks

- Red de Trastornos Adictivos
 - > Fondo de Investigación Sanitaria. Subprograma RETICS (RD12/0028/0009)
 - > Principal researcher: Torrens Melich, Marta

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Addiccions (GRAD). 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 790)
 - > Principal researcher: Torrens Melich, Marta

Clinical Trials

- Observational studies: 3 (2014/5495, 2014/5496, 2014/5497)

Awards

- Dr. Joaquin Santodomingo Award: Araos P, Pedraz M, Serrano A, Lucena M, Barrios V, García-Marchena N, Campos R, Baixeras E, Montesinos J, Guerri C, Rodríguez-Arias M, Miñarro J, Torrens M, Chowen JA, Argente J, Mason B, Pavón FJ, Rodríguez de Fonseca F. Plasma profile of pro-inflammatory cytokines in abstinent cocaine users: influence of the cocaine symptom severity and psychiatric comorbidity. XLI Jornadas Nacionales de Socidrogalcohol, Sevilla 3-5 April 2014
- Research Award: Mateu G, Martínez-Riera R, Martí J, Hurtado MG, Torrens M. Dual personality disorders: is there

any characteristics that lead us toward antipsychotic prescription? IV Annual Meeting on Therapeutics in Psychiatry. Barcelona 20-21 February 2014.

- Award for the best research project:
Galindo L. Esquizotipia y temperamento en pacientes afectos de esquizofrenia y familiares no afectos: Un estudio de resonancia magnética funcional. XXVIII Congreso Asociación Psiquiátrica de América Latina, Cartagena de Indias. November 2014.



Anxiety, Affective Disorders and Schizophrenia

RESEARCH GROUP



Coordinator

Antonio Bulbena Vilarrasa

Members

Noemí Casanova Alba
Jordi Coletas Juanico
Belén Díaz Múgica
María Paz Flores Martínez
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Ángeles Malagón Amor
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Anna Merino Torres
Guillem Pailhez Vindual
Salvador Ros Montalbán
María Inmaculada Ruiz Ripoll
Purificación Salgado Serrano
María José Tribó Boixareu



The group is made up of different researchers involved in clinical work either in hospital or primary care.

Although the backbone of the group is the original description (and derivative) of the association between anxiety and joint hypermobility syndrome (JHS), current lines of research include bipolar illness, schizophrenia, first episode psychosis, cognitive psychotherapy for anxiety, obsessive compulsive disorder, psychiatric emergency services, Hikikomori syndrome and also expert patient. Recently, a very active group for ethological research (animal hoarding, pet loss grief, human-animal interaction, etc.) also joined the group, producing important contributions.





Main Publications 2014

- Bergé D, Carmona S, Salgado P, Rovira M, Bulbena A, Vilarroya O. Limbic activity in antipsychotic naïve first-episode psychotic subjects during facial emotion discrimination. *Eur Arch Psy Clin N* 2014;264(4):271-283. IF 3.355. Q1.
- Bulbena A, Mallorquí-Bagué N, Pailhez G, Rosado S, González I, Blanch J, Carbonell J. Self-reported screening questionnaire for the assessment of Joint Hypermobility Syndrome (SQ-CH), a collagen condition, in Spanish population. *Eur J Psychiat* 2014;28(1):17-26. IF 0.391. Q4.
- Calvo P, Duarte C, Bowen J, Bulbena A, Fatjó J. Characteristics of 24 cases of animal hoarding in Spain. *Anim Welfare* 2014;23(2):199-208. IF 1.228. Q2.
- Fullana MA, Cardoner N, Alonso P, Subirà M, López-Solà C, Pujol J, Segalàs C, Real E, Bossa M, Zacur E, Martínez-Zalacaín I, Bulbena A, Menchón JM, Olmos S, Soriano-Mas C. Brain regions related to fear extinction in obsessive-compulsive disorder and its relation to exposure therapy outcome: a morphometric study. *Psychol Med* 2014;44(4):845-856. IF 5.428. Q1.
- Hoekzema E, Carmona S, Ramos-Quiroga JA, Richarte Fernández V, Bosch R, Soliva JC, Rovira M, Bulbena A, Tobeña A, Casas M, Vilarroya O. An independent components and functional connectivity analysis of resting state fMRI data points to neural network dysregulation in adult ADHD. *Hum Brain Mapp* 2014;35(4):1261-1272. IF 6.924. Q1.
- Mallorquí-Bagué N, Garfinkel SN, Engels M, Eccles JA, Pailhez G, Bulbena A, Critchley HD. Neuroimaging and psychophysiological investigation of the link between anxiety, enhanced affective reactivity and interoception in people with joint hypermobility. *Front Psychol* 2014;5:1162. IF 2.843. Q1.
- Moreno A, Duñó L, Hoekzema E, Picado M, Martín LM, Fauquet J, Vives-Gilabert Y, Bulbena A, Vilarroya O. Striatal volume deficits in children with ADHD who present a poor response to methylphenidate. *Eur Child Adolesc Psychiatry* 2014;23(9):805-812. IF 3.554. Q1.
- Pailhez G, Rosado S, Baeza-Velasco C, Bulbena A. Ectomorphic somatotype and joint hypermobility are linked in panic and agoraphobic patients: a case-control study. *Int J Psychiatr Clin* 2014;18(2):112-117. IF 1.313. Q3.
- Sánchez R, Baillés E, Peri JM, Bastidas A, Pérez-Villa F, Bulbena A, Pintor L. Cross-sectional psychosocial evaluation of heart transplantation candidates. *Gen Hosp Psychiat* 2014;36(6):680-685. IF 2.898. Q2.

- Santacana M, Fullana MA, Bonillo A, Morales M, Montoro M, Rosado S, Guillamat R, Vallès V, Pérez V, Bulbena A. Psychometric properties of the Spanish self-report version of the panic disorder severity scale. *Compr Psychiatry* 2014;55(6):1467-1472. IF 2.256. Q2.

Ongoing Research Projects 2014

- Determinantes clínicos y neurobiológicos de segundos episodios de esquizofrenia. Estudio longitudinal de primeros episodios psicóticos
 - > Fondo de Investigación Sanitaria. ISCIII (PI11/01433)
 - > Principal researcher: Bulbena Vilarrasa, Antonio
- El recuerdo de la extinción del miedo como biomarcador y predictor de respuesta terapéutica en los trastornos de ansiedad: Estudio mediante resonancia magnética funcional
 - > Fondo de Investigación Sanitaria. ISCIII (PI12/00273)
 - > Principal researcher: Fullana Rivas, Miguel Ángel
- Enfermedad somática y colágeno en los trastornos de ansiedad: un estudio caso-control
 - > Fondo de Investigación Sanitaria. ISCIII (PI10/00987)
 - > Principal researcher: Pailhez Vindual, Guillem

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Unitat de Recerca en Psiquiatria. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 851)
 - > Principal researcher: Bulbena Vilarrasa, Antonio

Bioanalysis and Analytical Services

RESEARCH GROUP



Coordinator

Jordi Segura Noguera

Members

Georgina Balcells Aribau
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Rosa Leonor Bergés Casa
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Immaculada Figuera Figuera
Lorena Garrostas Carreño
Mercedes de Gispert Talavera
Marta Gómez Gijón
Cristina Gómez Castellà
Preeti Gupta
Noemí Haro Villaverde
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Sonia Leal Xalma
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Xavier Matabosch Geronès
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Gerbert Olivé Vázquez
José Antonio Pascual Esteban
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Óscar Pozo Mendoza
Rosalía Ramírez Llanelis
Alicia Redón Peyró
Núria Renau Cuxart

Gemma Reverter Branchat
Maria Pilar Sáez Hernández
Ramón Safont Gutiérrez
Laia Sánchez Torner
Jèssica Vall Montero
Rosa Ventura Alemany
Meritxell Ventura García
Mariola Vera González
Marta Vicen Morales





The group has its main scientific objective in the research and development of analytical protocols under strict quality control regulations that may facilitate the detection and enhance understanding of the pharmacokinetics/pharmacology/metabolism of drugs present in biological fluids. Target compounds include new pharmaceuticals, as well as drugs that individuals may be more likely to be exposed to or may abuse, including individuals in the sporting world. The research group is fully equipped to conduct studies on both high- and low-molecular-weight compounds through chemical and biological methods, being accredited to ISO 17025 standard, and by the World Anti-Doping Agency. The group is part of a joint IMIM-UPF research entity recognized by the Government of Catalonia.

Main Publications 2014

- Ballbè M, Martínez-Sánchez JM, Sureda X, Fu M, Pérez-Ortuño R, Pascual JA, Saltó E, Fernández E. Cigarettes vs e-cigarettes: passive exposure at home measured by means of airborne marker and biomarkers. *Environ Res* 2014;135:76-80. IF 3.951. Q1.
- Defaus S, Gupta P, Andreu D, Gutiérrez-Gallego R. Mammalian protein glycosylation-structure versus function. *Analyst* 2014;139(12):2944-2967. IF 3.906. Q1.
- Dvorak J, Baume N, Botre F, Broseus J, Budgett R, Frey WO, Geyer H, Harcourt PR, Ho D, Howman D, Isola V, Lundby C, Marclay F, Peytavin A, Pipe A, Pitsiladis YP, Reichel C, Robinson N, Rodchenkov G, Saugy M, Sayegh S, Segura J, Thevis M, Verne A, Viret M, Vouillamoz M, Zorzoli M. Time for change: a roadmap to guide the implementation of the World Anti-Doping Code 2015. *Br J Sports Med* 2014;48(10):801-806. IF 4.171. Q1.
- Fabregat A, Marcos J, Garrostas L, Segura J, Pozo O, Ventura R. Evaluation of urinary excretion of androgens conjugated to cysteine in human pregnancy by mass spectrometry. *J Steroid Biochem & Mol Biol* 2014;139:192-200. IF 4.049. Q2.
- Gómez C, Fabregat A, Pozo O, Marcos J, Segura J, Ventura R. Analytical strategies based on mass spectrometric techniques for the study of steroid metabolism. *Trac-Trend Anal Chem* 2014;53:106-116. IF 6.612. Q1.
- Marcos J, Renau N, Casals G, Segura J, Ventura R, Pozo O. Investigation of endogenous corticosteroids profiles in human urine based on liquid chromatography tandem mass spectrometry. *Anal Chim Acta* 2014;812:92-104. IF 4.517. Q1.
- Martínez-Sánchez JM, Sureda X, Fu M, Pérez-Ortuño R, Ballbè M, López MJ, Saltó E, Pascual JA, Fernández E. Secondhand smoke exposure at home: Assessment by biomarkers and airborne markers. *Environ Res* 2014;133C:111-116. IF 3.951. Q1.
- Matabosch X, Pozo O, Papaseit E, Farré M, Marcos J, Segura J, Ventura R. Detection and characterization of triamcinolone acetonide metabolites in human urine by liquid chromatography/tandem mass spectrometry after intramuscular administration. *Rapid Commun Mass Spect* 2014;28(16):1829-1839. IF 2.642. Q2.
- Pozo O, Marcos J, Fabregat A, Ventura R, Casals G, Aguilera P, Segura J, To-Figueras J. Adrenal hormonal imbalance in acute intermittent porphyria patients: results of a case control study. *Orphanet J Rare Dis* 2014;9(1):54. IF 3.958. Q1.
- Segura J, Lundby C. Blood doping: potential of blood and urine sampling to

detect autologous transfusion. Br J Sports Med 2014;48(10):837-841. IF 4.171. Q1.

Ongoing Research Projects 2014

- Rapid screening (and confirmatory) method for rEPO and NESP based on immuno-recognition of its exogenous N-glycolyl-neuraminic acid content
 - > World Anti-Doping Agency (o5A8JP)
 - > Principal researcher: Pascual Esteban, José Antonio
- A holistic approach to (glyco) protein hormone doping analysis
 - > World Anti-Doping Agency (o8B01RG)
 - > Principal researcher: Gutiérrez Gallego, Ricardo
- Detection of the non-human N-glycolyl-neuraminic acid (Neu5Gc) using immunopurification and chipLC/MS/MS (GLYCOCHIP)
 - > World Anti-Doping Agency (o8A02JP)
 - > Principal researcher: Pascual Esteban, José Antonio
- Preparation and characterisation of new immunopurified urinary and plasmatic EPO standards (REFEPOS)
 - > World Anti-Doping Agency (o9B3JP)
 - > Principal researcher: Pascual Esteban, José Antonio
- A fair competition for the Growth Hormone Secretagogue receptor
 - > World Anti-Doping Agency (10B11RG)
 - > Principal researcher: Gutiérrez Gallego, Ricardo
- Test for blood transfusion (autologous/homologous) based on observed changes of erythrocyte membrane proteome
 - > World Anti-Doping Agency
 - > Principal researcher: Nikolovski, Zoran
- Establishment of steroid biomarkers by metabolomic approaches
 - > Fondo de Investigación Sanitaria. ISCIII (CP10/00576)
 - > Principal researcher: Pozo Mendoza, Óscar
- Abuso de esteroides anabolizantes androgénicos en el deporte: evaluación de nuevas herramientas analíticas para mejorar la capacidad de detección en el control antidopaje
 - > Ministerio de Ciencia e Innovación (DEP2011-28573-Co2-02)
 - > Principal researcher: Pozo Mendoza, Óscar
- Detection of circulating anti-Neu5Gc antibodies as a proof of use of recombinant glycoproteins: rEPO and analogues
 - > World Anti-Doping Agency (11B10JP)
 - > Principal researcher: Pascual Esteban, José Antonio
- Useful information about recently reported testosterone metabolites related with doping control analysis
 - > World Anti-Doping Agency (11A22OP)
 - > Principal researcher: Pozo Mendoza, Óscar
- Developments for improving compliance with blood testing, a fundamental but minimally implemented tool in doping control (EASY BLOOD)



- > Ministerio de Economía y Competitividad (DEP2012-32048)
> Principal researcher: Segura Noguera, Jordi
- New strategies to improve the detection of the misuse of anabolic androgenic steroids in sports: study of new phase II metabolites (DANASIN)
 - > Ministerio de Economía y Competitividad (DEP2012-35612)
> Principal researcher: Ventura Alemany, Rosa
- Evaluation of sulfate conjugated metabolites to improve detection capabilities of the misuse of anabolic androgenic steroids
 - > World Anti-Doping Agency (12A21RV)
> Personal researcher: Ventura Alemany, Rosa
- Synthesis of recently reported phase II metabolites for their inclusion in routine doping control analysis
 - > World Anti-Doping Agency
> Principal researcher: Pozo Mendoza, Óscar
- Medida de metabolitos de nicotina y carcinógenos del tabaco en muestras biológicas de una cohorte (2004-2013) de fumadores y no fumadores
 - > Fondo de Investigación Sanitaria. ISCIII (PI12/01119)
> Personal researcher: Pascual Esteban, José Antonio
- Ultra-sensitive mass spectrometric detection of an rEPO specific O-glycopeptide as an unambiguous proof of doping (GOpep)
 - > World Anti-Doping Agency (13A25JP)
> Personal researcher: Pascual Esteban, José Antonio
- A Secretagogue Chemiluminescent Assay
 - > World Anti-Doping Agency (13Bo8RG)
> Principal researcher: Segura Noguera, Jordi
- Evaluation of alternative glucocorticosteroid metabolites for the discrimination between legal and forbidden administration routes
 - > World Anti-Doping Agency (13D22RV)
> Personal researcher: Ventura Alemany, Rosa
- Impact of glucocorticosteroid administration on the steroid profile
 - > World Anti-Doping Agency (14Do6RV)
> Personal researcher: Ventura Alemany, Rosa

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Bioanàlisi i Proteòmica. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 692).
- > Principal researcher: Segura Noguera, Jordi

Sharing of Knowledge

► Visiting other anti-doping laboratories

- José Antonio Pascual visited the Anti-Doping Laboratory Sports Medicine Institute (Cuba).
- Georgina Balcells stayed in the Drug Control Centre, King's College London, and collaborated in the doping control analysis during the XX Commonwealth Games 2014 (London, UK).
- Jordi Segura and Rosa Ventura visited the Egyptian Anti-Doping Laboratory, Cairo (Egypt).

► Training or education of other anti-doping laboratories

- Said Fathi Hotar (Technical Manager), Rasha Mostafa, Mohamed Aziz (Quality Control), Abo Al Hassan Abd Al (GC) and Waleed Ali Shaheen (LG) from the Egyptian Anti-Doping Laboratory, Cairo (Egypt).
- Francesco Donati from the Laboratorio Antidoping FMSI (Roma).
- Supornchai Kongpatanakul, from the National Doping Control Centre, Mahidol University, Bangkok (Thailand).
- Irina Zvereva and Grigorii Krotov, from the Antidoping Centre Moscow.

- Malcolm Donald MC Leod, from the Research School of Chemistry-Australian National University (Australia).
- Visit of Marco Aurelio Klein, Director of the Autoridade Brasileira de Controle de Dopagem (ABCD) (Brasil), and in the same delegation Enrique Gómez Bastida (Director) and Luis Illanas (Manager), from the Agencia Española de Protección de la Salud en el Deporte (AEPSAD) (Madrid).

Other related activities

- Jordi Segura actively participated as a member of the FINA Doping Control Review Board (DCRB) in the FINA World Swimming Championships (25m), Doha.
- Jordi Segura actively participated as member of the IOC Antidoping Expert Group in the Olympic Winter Games 2014, Sochi.
- José Antonio Pascual actively participated as Chairman of the Antidoping Committee of the International Paralympic Committee, in the Paralympic Winter Games 2014, Sochi.
- José Antonio Pascual was endorsed Chairperson IPC Anti-Doping Committee for the period 2014-2017.

Childhood and Environment

RESEARCH GROUP



Coordinators

Oriol Vall Combellés
Óscar García-Algar

Members

Airam Tenesor Álvarez Sánchez
Antonella Chiandetti
Javier Joya Cecilla
Maria Margaret Mercadal Hally
Sandra Ortigosa Gómez
Judith Salat Batlle





The group is dedicated to research related to childhood and its environments, from the fetus (mother's womb) to the child's environment (air, settings, school, etc.). Over 15 years of involvement in research, projects have seen significant results in terms of publications. The group is currently working on projects related to substances of abuse (alcohol, tobacco, drugs of abuse), including (1) prevalence of exposure and consumption studies (in pregnant women, neonates and children), especially the study of biomarkers in unconventional biological matrices, (2) follow-up of exposed children, especially prenatal exposure to alcohol, (3) biomarkers of damage in prenatally-exposed children, (4) animal models of deleterious effects of prenatal exposure to alcohol.

Main Publications 2014

- Clavé S, Joya X, Salat-Batlle J, García-Algar O, Vall O. Ethanol cytotoxic effect on trophoblast cells. *Toxicol Lett* 2014;225(2):216-221. IF 3.355. Q1.
- Escuder-Vieco D, García-Algar O, Pichini S, Pacifici R, García-Lara NR, Pallás-Alonso CR. Validation of a screening questionnaire for a human milk bank to determine the presence of illegal drugs, nicotine and caffeine. *J Pediatr* 2014;164(4):811-814. IF 3.736. Q1.
- Joya X, García-Algar O, Vall O, Pujades C. Transient exposure to ethanol during zebrafish embryogenesis results in defects in neuronal differentiation: an alternative model system to study FASD. *PLoS ONE* 2014;9(11):e112851. IF 3.534. Q1.
- Joya X, Manzano C, Álvarez AT, Mercadal M, Torres F, Salat-Batlle J, García-Algar O. Transgenerational exposure to environmental tobacco smoke. *Int J Environ Res Public Health*. 2014;11(7):7261-7274. IF 1.993. Q2.
- Pichini S, García-Algar O, Álvarez A, Gottardi M, Marchei E, Svaizer F, Pellegrini M, Rotolo MC, Pacifici R. Assessment of unsuspected exposure to drugs of abuse in children from a Mediterranean city by hair testing. *Int J Environ Res Public Health* 2014;11(2):2288-2298. IF 1.993. Q2.
- Pichini S, García-Algar O, Álvarez AT, Mercadal M, Mortali C, Gottardi M, Svaizer F, Pacifici R. Pediatric exposure to drugs of abuse by hair testing: monitoring 15 years of evolution in Spain. *Int J Environ Res Public Health*. 2014;11(8):8267-8275. IF 1.993. Q2.
- Pichini S, Gottardi M, Marchei E, Svaizer F, Pellegrini M, Rotolo MC, García-Algar O, Pacifici R. Rapid extraction, identification and quantification of drugs of abuse in hair by immunoassay and ultra-performance liquid chromatography tandem mass spectrometry. *Clin Chem Lab Med* 2014;52(5):679-686. IF 2.955. Q1.
- Pichini S, Marchei E, García-Algar O, Gómez A, di Giovannandrea R, Pacifici R. Ultra-high-pressure liquid chromatography tandem mass spectrometry determination of hallucinogenic drugs in hair of psychedelic plants and mushrooms consumers. *J Pharm Biomed Anal* 2014;100C:284-289. IF 2.979. Q1.
- Pichini S, Morini L, Pacifici R, Tuyay J, Rodrigues W, Solimini R, García-Algar O, Ramis J, Moore C. Development of a new immunoassay for the detection of ethyl glucuronide (EtG) in meconium: validation with authentic specimens analyzed using LC-MS/MS. Preliminary

results. Clin Chem Lab Med 2014; 52(8):1179-1185. IF 2.955. Q1.

- Pichini S, Rotolo MC, García J, Girona N, Leal L, García-Algar O, Pacifici R. Neonatal withdrawal syndrome after chronic maternal consumption of 4-methylethcathinone. Forensic Sci Int. 2014;245:e33-e35. IF 2.115. Q2.
- Vall O, Gómez-Culebras M, Puig C, Rodríguez-Carrasco E, Gómez Baltazar A, Canchucaja L, Joya X, García-Algar O. Prenatal and postnatal exposure to DDT by breast milk analysis in Canary Islands. PLoS ONE 2014;9(1):e83831. IF 3.534. Q1.

Ongoing Research Projects 2014

- Consumo materno de alcohol durante el embarazo: diagnóstico de la exposición prenatal, cribado neonatal y seguimiento postnatal
 - > Fondo de Investigación Sanitaria. ISCIII (PI10/02593)
 - > Principal researcher: García Algar, Óscar
- Trastorno del espectro alcohólico fetal en el colectivo de los niños adoptados en Europa del Este: diagnóstico e intervención
 - > Recercaixa (OG085818)
 - > Principal researcher: García Algar, Óscar
- Efectos clínicos de la exposición prenatal al alcohol: seguimiento de una cohorte

> Fondo de Investigación Sanitaria. ISCIII (PI13/01135)

> Principal researcher: García Algar, Óscar

- Epigalocatequina galato (EGCG) como herramienta terapéutica para mejorar el rendimiento cognitivo en niños con síndrome alcohol fetal (SAF)
 - > Fundación Mutua Madrileña (AP150572014)
 - > Principal researcher: Joya Cecilia, Javier

Participation in Research Networks

- Red de salud materno-infantil y del desarrollo
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS (RD12/0026/003)
 - > Principal researcher: García Algar, Óscar
- Red de salud materno-infantil y del desarrollo (SAMID)
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS (RDo8/0072/0027)
 - > Principal researcher: Vall Combelles, Oriol

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Unitat de Recerca Infància i Entorn 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 584)
 - > Principal researcher: García Algar, Óscar

Human Pharmacology and Clinical Neurosciences

RESEARCH GROUP



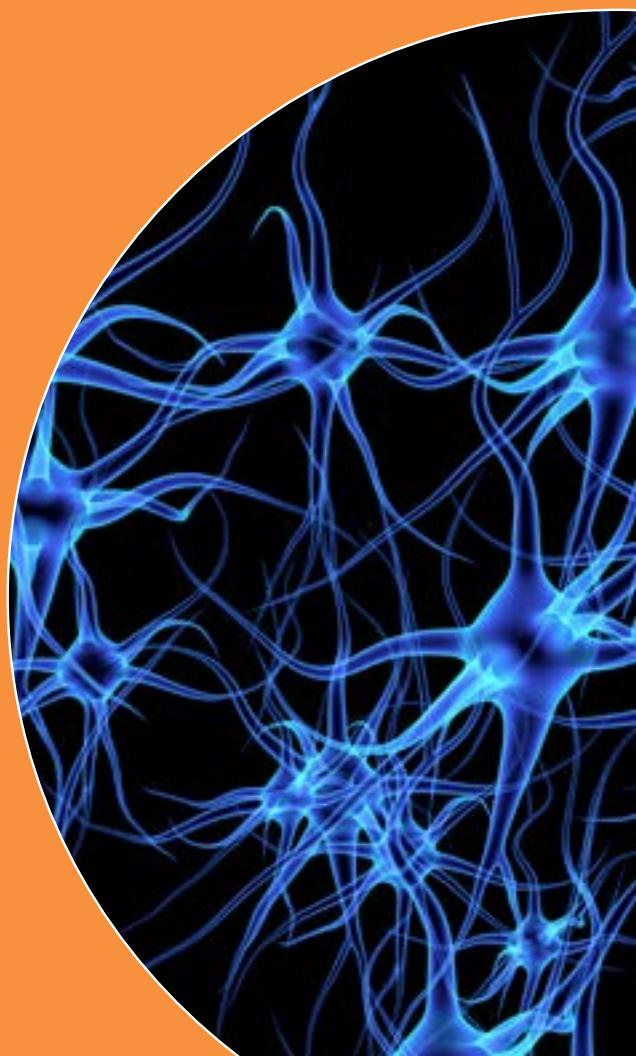
Coordinator

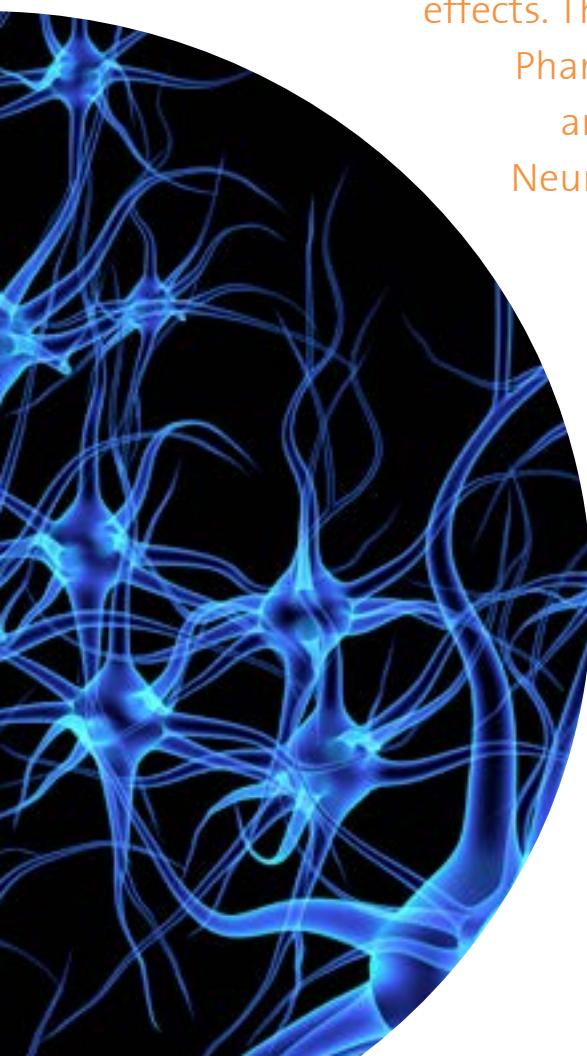
Rafael de la Torre Fornell

Members

Laura Blanco Hinojo
Anna Boronat Rigol
Ester Civit Rovirosa
Aida Maria Cuenca Royo
Susana de Sola Llopis
Magí Farré Albaladejo
Laura Forcano Gamazo
Carola Llonch Tebe
Cristina Llop Julià
Laura del Hoyo Soriano
Soraya Martín Sánchez
Julián Andrés Mateus Rodríguez
Esther Menoyo Colomer
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Esther Papaseit Fontanet
Antoni Pastor Bosch
Clara Pérez Mañá
Marta Pérez Otero

Nieves Pizarro Lozano
María Victoria Puig Velasco
Mitona Pujadas Bastardes
Patricia Robledo Montoya
Laia Roca San José
Josep Rodríguez Morató
Juan Francisco Rodríguez Rodríguez
Laura Xicota Vila





Our mission is the development of pharmacological and non-pharmacological (cognitive/electrical stimulation) approaches for the treatment of neurodevelopmental and psychiatric disorders including drug addiction with emphasis on the understanding of the underlying mechanisms of action/physiological processes involved in therapeutic effects. The Human Pharmacology and Clinical Neurosciences research group is

responsible for providing instruction in pharmacology and toxicology to human biology and medicine students and for providing graduate education to students in a variety of research tracks (biology and medicine).

Research lines of the group include:
(1) Clinical pharmacology of drugs of abuse, (2) Genes, endophenotypes, and environmental vulnerability associated with substances of abuse and psychiatric disorders, (3) Health benefits of nutrition in cognitive performance, (4) Neurophysiology and pharmacology of cognition in psychiatric and neurodevelopmental disorders, (5) Integrated behavioral pharmacology of mental disorders including drug addiction, schizophrenia and depression.



Main Publications 2014

- Batalla A, Soriano-Mas C, López-Solà M, Torrens M, Crippa JA, Bhattacharyya S, Blanco-Hinojo L, Fagundo AB, Harrison BJ, Nogué S, de la Torre R, Farré M, Pujol J, Martín-Santos R. Modulation of brain structure by catechol-O-methyltransferase Val(158) Met polymorphism in chronic cannabis users. *Addict Biol* 2014;19(4):722-732. IF 5.929. Q1.
- Cuyas E, Robledo P, Pizarro N, Farré M, Puerta E, Aguirre N, de la Torre R. 3,4-Methylenedioxymethamphetamine Induces Gene Expression Changes in Rats Related to Serotonergic and Dopaminergic Systems, But Not to Neurotoxicity. *Neurotox Res* 2014;25(2):161-169. IF 3.151. Q2.
- Farré M, Pérez-Mañá C, Papaseit E, Menoyo E, Pérez M, Martin S, Bullich S, Rojas S, Herance JR, Trampal C, Labeaga L, Valiente R. Bilastine vs. Hydroxyzine: Occupation of Brain Histamine H₁ Receptors Evaluated by Positron Emission Tomography in Healthy Volunteers. *Br J Clin Pharmacol* 2014;75(5):970-980. IF 3.688. Q1.
- Pastor A, Farré M, Fitó M, Fernández-Aranda F, de la Torre R. Analysis of ECs and related compounds in plasma: artifactual isomerization and ex vivo enzymatic generation of 2-MGs. *J Lipid Res* 2014;55(5):966-977. IF 4.73. Q1.
- Puig MV, Antzoulatos EG, Miller EK. Prefrontal dopamine in associative learning and memory. *Neuroscience* 2014;282:217-229. IF 3.327. Q2.
- Robledo P, Martín-García E, Aso E, Maldonado R. Genetically Modified Mice as Tools to Understand the Neurobiological Substrates of Depression. *Curr Pharm Design* 2014;20(23):3718-3737. IF 3.288. Q1.
- De Sousa Fernandes Perna EB, Theunissen EL, Kuypers KP, Heckman P, de la Torre R, Farré M, Ramaekers JG. Memory and mood during MDMA intoxication, with and without memantine pretreatment. *Neuropharmacology* 2014;87:198-205. IF 4.819. Q1.
- De la Torre R, de Sola S, Pons M, Duchon A, Martínez de Lagrán M, Farré M, Fitó M, Benejam B, Langohr K, Rodríguez J, Pujadas-Bastardes M, Bizot JC, Cuenca A, Janel N, Catuara S, Covas MI, Blehaut H, Herault Y, Delabar JM, Dierssen M. Epigallocatechin-3-gallate, a DYRK1A inhibitor, rescues cognitive deficits in Down syndrome mouse models and in humans. *Mol Nutr Food Res* 2014;58(2):278-288. IF 4.909.

- Verdejo-García A, Albein-Urios N, Martínez-González JM, Civit E, de la Torre R, Lozano O. Decision-making impairment predicts 3-month hair-indexed cocaine relapse. *Psychopharmacology (Berl)* 2014;231(21):4179-4187. IF 3.988. Q1.
- Verdejo-García A, Contreras-Rodríguez O, Fonseca F, Cuenca A, Soriano-Mas C, Rodríguez J, Pardo-Lozano R, Blanco-Hinojo L, de Sola S, Farré M, Torrens M, Pujol J, de la Torre R. Functional alteration in frontolimbic systems relevant to moral judgment in cocaine-dependent subjects. *Addict Biol* 2014;19(2):272-281. IF 5.929. Q1.

Ongoing Research Projects 2014

- Tratamiento de la dependencia de cocaína con inhibidores de la aldehído deshidrogenasa (ALDH2) de origen natural
 - > Ministerio de Sanidad y Política Social
 - > Principal researcher: Farré Albaladejo, Magí
- Normalización de la función de Dyrk1A y de APP, para mejorar el rendimiento cognitivo y frenar la progresión de EA en pacientes SD: Epigallocatequina galato como herramienta terapéutica
 - > Fondo de Investigación Sanitaria. ISCIII (PI11/00744)
 - > Principal researcher: De la Torre Fornell, Rafael

- Potencial de abuso y farmacología humana de la mefedrona: una droga de diseño emergente
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Farré Albaladejo, Magí
- Dose-response effect of alcohol ingestion on steroid profile (PROFETHYL)
 - > World Anti-Doping Agency (12D10RD)
 - > Principal researcher: De la Torre Fornell, Rafael
- EU-MADNESS (EUropean-wide, Monitoring, Analysis and knowledge Dissemination on Novel/Emerging pSychoactiveS): integrated EU NPS monitoring & profiling to prevent health harms and update professionals
 - > European Commission
 - > Principal researcher: Farré Albaladejo, Magí
- Biomarcadores de consumo de alcohol: evaluación adultos y menores
 - > Ministerio de Sanidad y Política Social
 - > Principal researcher: Farré Albaladejo, Magí
- Recombinant hGH Biomarkers Discovery, Phase II
 - > World Anti-Doping Agency (T13Mo7RD)
 - > Principal researcher: De la Torre Fornell, Rafael
- Estrategias terapéuticas para la recuperación de las alteraciones cognitivas en la discapacidad intelectual mediante inhibición de la quinasa DYRK1A

- > Ministerio de Economía y Competitividad
(SAF2013-49129-C2-2-R)
- > Principal researcher: Puig Velasco, María Victoria

Participation in Research Networks

- Red de Trastornos Adictivos
 - > Fondo de Investigación Sanitaria. Subprograma RETICS (RD12/0028/0009)
 - > Principal Researcher: Torrens Melich, Marta
- Our group is linked to the Spanish Research Networks of Addictive Disorders (RTA) and CIBER on Physiopathology of Obesity and Nutrition (CIBEROBN).

Group's Recognition

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Clínica en Farmacologia i Epidemiologia de les Drogues d'Abús i Neurociències. 2014
 - > Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 680).
 - > Principal researcher: Rafael de la Torre Fornell

Clinical Trials Signed in 2014

- Phase II studies: 1 (2013/5450)

Others

- Technological Innovation Network (TECNIO) of the ACCIÓ (Ministry of Employment Industry and Energy, Generalitat de Catalunya)



Neurofunctionality of Brain and Language

RESEARCH GROUP



Coordinator

Jordi Peña Casanova

Members

Marta Casals Coll
Gerardo Conesa Bertran
Josep M. Espadaler Gamissans
Rosa M. Manero
Núria Massuet Pujadas
Alessandro Principe
Víctor Manuel Puente Periz
Rodrigo Alberto Rocamora Zúñiga
Gonzalo Sánchez Benavides
Glòria Villalba Martínez





The Neurofunctionality of Brain and Language Research Group focuses on the study of the relationships between the brain and cognition, behavior, and emotional states, with a special interest in language. These relationships are studied in the context of focal and diffuse brain pathology, particularly in neurodegenerative diseases, tumors and epilepsy.

The unit has a multidisciplinary approach to neurofunctionality and language in the study of patients to be submitted to neurosurgical procedures. This approach enables the undertaking of advanced neurosurgery, with unquestionable benefits for the patient, given that during the surgical intervention the cerebral zones related to cognitive functions can be differentiated and protected.

The technology implemented in the operating theatre is used in conjunction with cognitive and neurophysiological studies.

Main Publications 2014

- Casals-Coll M, Sánchez-Benavides G, Meza-Cavazos S, Manero RM, Aguilar M, Badenes D, Molinuevo JL, Robles A, Barquero MS, Antúnez C, Martínez-Parra C, Frank-García A, Fernández M, Blesa R, Peña-Casanova J, for the NEURONORMA Study Team. Spanish Multicenter Normative Studies (NEURONORMA Project): Normative Data and Equivalence of Four BNT Short-Form Versions. *Arch Clin Neuropsych* 2014;29(1):60-74. FI 1.921. Q2.
- Gil-Gil MJ, Martínez-García M, Sierra A, Conesa G, del Barco S, González-Jiménez S, Villà S. Breast cancer brain metastases: a review of the literature and a current multidisciplinary management guideline. *Clin Transl Oncol* 2014;16(5):436-446. FI 1.6. Q4.
- Ley M, Vivanco R, Massot A, Jiménez-Conde J, Roquer J, Rocamora R. Estudio de seguridad en la monitorización por vídeo-electroencefalograma prolongado. *Neurología (Barc)* 2014;29(1):21-26. FI 1.352. Q4.
- Manero RM, Casals-Coll M, Sánchez-Benavides G, Rodríguez-de los Reyes ON, Aguilar M, Badenes D, Molinuevo JL, Robles A, Barquero MS, Antúnez C, Martínez-Parra C, Frank-García A,

Fernández M, Blesa R, Peña-Casanova J, for the NEURONORMA Study Team. Diagnostic Validity of the Alzheimer's Disease Functional Assessment and Change Scale in Mild Cognitive Impairment and Mild to Moderate Alzheimer's Disease. *Dement Geriatr Cogn Disord* 2014;37(5-6):366-375. FI 2.812. Q2.

- Massot A, Vivanco R, Principe A, Roquer J, Rocamora R. Estudio postautorización de la eslicarbazepina en el tratamiento de epilepsias farmacorresistentes: resultados preliminares. *Neurología (Barc)* 2014;29(2):94-101. FI 1.352. Q4.
- Rocamora R, Becerra JL, Fossas P, Gómez M, Vivanco R, Mauri JA, Molins A. Pilomotor seizures: An autonomic semiology of limbic encephalitis? *Seizure* 2014;23(8):670-673. FI 2.059. Q3.

Ongoing Research Projects 2014

- SYLVIUS: A novel multimodal integrative computer platform to model language and improve neurosurgical planning and treatment outcome
 - > Fundació "la Caixa"
 - > Principal researcher: Conesa Bertran, Gerardo

Clinical Trials Signed in 2014

- Phase III studies: 3 (2013/5442, 2013/5448, 2014/5674)

Neuroimaging of Mental Disorders

RESEARCH GROUP



Coordinator

Óscar Vilarroya Oliver

Members

Daniel Bergé Baquero
Romina Cortizo Vidal
Mireia Forns Nadal

This multidisciplinary research group has the objective of studying the neuroanatomical and neurofunctional bases of specific mental and neurological disorders, as well as specific cognitive, emotional and motivational functions among the general population, using structural and functional magnetic resonance techniques. At present, the group has the following research lines active in neuroimaging: Attention Deficit Hyperactivity Disorder and other impulsivity disorders, Schizophrenia and other psychotic disorders, Anxiety disorders, and other studies in the general population.



Main Publications 2014

- Bergé D, Carmona S, Salgado P, Rovira M, Bulbena A, Vilarroya O. Limbic activity in antipsychotic naïve first-episode psychotic subjects during facial emotion discrimination. *Eur Arch Psy Clin N* 2014;264(4):271-283. IF 3.355. Q1.
- Hoekzema E, Carmona S, Ramos-Quiroga JA, Richarte V, Bosch R, Soliva JC, Rovira M, Bulbena A, Tobeña A, Casas M, Vilarroya O. An independent components and functional connectivity analysis of resting state fMRI data points to neural network dysregulation in adult ADHD. *Hum Brain Mapp* 2014;35(4):1261-1272. IF 6.924. Q1.
- Hoekzema E, Carmona S, Ramos-Quiroga JA, Canals C, Moreno A, Richarte V, Picado M, Bosch R, Duñó L, Soliva JC, Rovira M, Bulbena A, Tobeña A, Casas M, Vilarroya O. Stimulant drugs trigger transient volumetric changes in the human ventral striatum. *Brain Struct Funct* 2014;219(1):23-34. IF 4.567. Q1.
- Moreno A, Duñó L, Hoekzema E, Picado M, Martín LM, Fauquet J, Vives-Gilabert Y, Bulbena A, Vilarroya O. Striatal volume deficits in children with ADHD who present a poor response to methylphenidate. *Eur Child Adolesc Psychiatry* 2014; 23(9): 805-812. IF 3.554. Q1.
- Tobeña A, Vilarroya O. Normative seeds for deadly martyrdoms. *Behav Brain Sci* 2014;37(4):378-379. IF 14.962. Q1.

Noxas and Children

RESEARCH GROUP



Coordinator

Antonio Mur Sierra

Members

Gemma Aznar Laín
Mariona Bonet Alcaina
Josefa Díaz Ledo
Jordi García García
Michaela Linder Lucht
M. Núria López Segura
M. Ángeles López Vilchez
Cristina Molera Busoms

The group is composed of physicians from different specialties who research in their respective field: neurology, endocrinology, gastro-hepatology, neonatology and infectious disease. The most developed research is HIV infection in children, in all areas (vertical transmission, treatments, cognitive development, quality of life) and drug use in pregnant women and its neonatal and long term repercussions in their children (social and crime problems, drug abuse tendency, psychiatric disorders)



Main Publications 2014

- Madrigal I, Álvarez-Mora MI, Karlberg O, Rodríguez-Revenga L, Elurbe DM, Rabionet R, Mur A, Pie J, Ballesta F, Sauer S, Syvänen AC, Milà M. Efficient application of next-generation sequencing for the diagnosis of rare genetic syndromes. *J ClinPathol* 2014;67(12):1099-1103. IF 2.551. Q2.
- Mur A, Ortigosa-Gómez S. ¿Es posible una nueva epidemia de consumo de heroína en España? (Editorial). *MedClin* (Barc) 2014;143(9):398-400. IF 1.252. Q3.

Ongoing Research Projects 2014

- Evolución del hijo de madre adicta a opiáceos más allá de la adolescencia: patologías, aspectos sociales, y estudio de la predisposición al consumo de sustancias de abuso
 - > Fondo de Investigación Sanitaria. ISCIII (PS09/00503)
 - > Principal researcher: Mur Sierra, Antonio

Perioperative Medicine

RESEARCH GROUP



Coordinator

Lluís Gallart Gallego

Members

Lluís Aguilera Cuchillo
Juan Carlos Álvarez García
Enriqueta Barrera Álvarez
Sílvia Bermejo Martínez
Elvira Bisbe Vives
Christian Dürsteler Tatxe
Fernando Escolano Villén
Susana Fernández Galinski
Anna Mases Fernández
Lluís Moltó Garcia
Antonio Montes Pérez
Ana Pérez Granados
Uxia Rodríguez Rivas
Francesc Xavier Santiveri Papiol
Maria Teresa Silva Costa Gómes
Jordi Vallés Esteve



We are clinical anesthesiologists who also perform clinical research. Our main topics are: (1) respiratory aspects of anesthesia, namely treatment of perioperative hypoxemia, effects of anesthetics on respiratory function and postoperative pulmonary complications; (2) blood-saving strategies, focused on avoiding blood transfusion; (3) neuroanesthesia, mainly monitoring depth of anesthesia and effects of anesthetics during neuroanesthesia; (4) clinical trials related to anesthetic procedures.





Main Publications 2014

- Bermejo S, Gallart L, Silva-Costa-Gómez T, Vallés-Esteve J, Aguiló R, Puig MM. Almitrine Fails to Improve Oxygenation During One-Lung Ventilation with Sevoflurane Anesthesia. *J Cardiothor Vasc An* 2014;28(4):931-936. IF 1.482. Q3.
- Bisbe E, Moltó L, Arroyo-Pérez R, Muniesa JM, Tejero M. Randomized trial comparing ferric carboxymaltose vs oral ferrous glycine sulphate for postoperative anaemia after total knee arthroplasty. *Br J Anaesth* 2014;113(3):402-409. IF 4.354. Q1.
- Canet J, Gallart L. Postoperative respiratory failure: pathogenesis, prediction, and prevention. *Curr Opin Crit Care* 2014;20(1):56-62. IF 3.183. Q2.
- Hernández-Puiggròs P, Montes A, Solano A, Aguilar JL, Conesa G, Horcajada JP. Conservative Treatment of an Epidural Abscess After Thoracic Epidural Catheterization. *A&A Case Reports* 2014;3(12):162-165.
- Mases A, Sabaté S, Guilera N, Sadurní M, Arroyo R, Fau M, Rojo A, Castillo J, Bover J, Sierra P, Canet J, on behalf of the ANESCARDIOCAT Group. Preoperative estimated glomerular filtration rate and the risk of major adverse cardiovascular and cerebrovascular events in non-cardiac surgery. *Br J Anaesth* 2014;113(4):644-651. IF 4.354. Q1.
- Mazo V, Sabaté S, Canet J, Gallart L, Gama de Abreu M, Belda J, Langeron O, Hoeft A, Pelosi P. Prospective external validation of a predictive score for postoperative pulmonary complications. *Anesthesiology* 2014;121(2):219-231. IF 6.168. Q1.
- Pacreu S, Ortega G, Vilà E, Fernández-Candil J, Moltó L, Fernández-Galinski S. Changes in Density Spectral Array of BIS Vista Monitoring System in epilepsy surgery. *Int J Neurorehab* 2014;1:126.
- Valero R, Orrego C, Mayoral V, Massó E, López A, Sabaté S, Villalonga R, Bermejo S, Borras R, Vila P, Villalonga A, Añez C, Casals P, Canet J, on behalf of the QUAVA Group. Collaborative intervention to improve airway assessment and safety in management for anaesthesia: The Qualitat& Via Aèria (QUAVA) study. *Eur J Anaesthesiol* 2014;31(3):143-152. IF 3.011. Q1.
- Vidal P, Ramon-Moros JM, Goday A, Parri A, Crous X, Trillo L, Pera MR, Grande L. Lack of Adherence to Follow-Up Visits After Bariatric Surgery: Reasons and Outcome. *Obes Surg* 2014;24(2):179-183. IF 3.739. Q1.

Ongoing Research Projects 2014

- Efectos de la presión positiva continua (CPAP) intraoperatoria sobre la respuesta inflamatoria del pulmón con cáncer sometido a lobectomía. Ensayo clínico aleatorizado con grupo de control
 - > Fondo de Investigación Sanitaria. ISCIII (PI10/00383)
 - > Principal researcher: Gallart Gallego, Lluís
- Sensibilización al dolor en el periodo postoperatorio: Implicación de la activación de la GLIA en la hiperalgesia inducida por opioides (HIO)
 - > Fondo de Investigación Sanitaria. ISCIII (PS09/01270)
 - > Principal researcher: Puig Riera de Conias, Margarita
- LIIRA – Efficacy Of Pregabalin In The Treatment Of Pancreatic Cancer Pain. A Randomized Controlled Double-Blind, Parallel Group Study
 - > PFIZER
 - > Principal researcher: Dürsteler Tatxe, Christian
- Prótesis de rodilla dolorosa. Relación entre la analgesia endógena y el dolor postquirúrgico persistente
 - > Fondo de Investigación Sanitaria. ISCIII (PI12/01422)
 - > Principal researcher: Dürsteler Tatxe, Christian

Clinical Trials Signed in 2014

- Phase III studies: 1 (2013/5332)
- Phase IV studies: 1 (2013/5475)
- Observational studies: 1 (2014/5900)

Awards

- Miguel Prize of the Societat Catalana d'Anestesiologia: Mejía Kattah J, Vilá Barriuso E, García Bernedo C, Gallart Gallego L. Kernohan-Woltman notch phenomenon secondary to a cranial epidural hematoma. Rev Esp Anestesiol Reanim 2014;61(6):332-5.
- Juan Castaño Prize of the Societat Catalana d'Anestesiologia: Benítez-Cano A, García Bernedo C, Sadurní M, Carazo J, Samsó E. Correlación entre clearance de procalcitonina y complicaciones mayores en peritonitis secundarias postquirúrgicas.

Behavioral Neurobiology

ASSOCIATED RESEARCH GROUP



Coordinator

Olga Valverde Granados

Members

Anna Esteve Arenys
Irene Gracia Rubio
María Moscoso Castro
Neus Toro Ortiz

The Behavioral Neurobiology research group was constituted in 2007 and is a recognized team in the study of the neurobiological substrate of psychiatric disorders and neurotoxicity, including drug addiction, affective disorders, psychiatric comorbidity and schizophrenia.

The group belongs to the Experimental and Health Sciences Department of the Pompeu Fabra University and is located in the Barcelona Biomedical Research Park (<http://www.prbb.org/eng/partoo/portada.aspx>). Its team is member of the Addictive Disorders Network (Red de Trastornos Adictivos RTA-ISCI) (<http://redrta.es/index.php>) and has been recently incorporated into the Neurosciences Programme of IMIM (Hospital del Mar Medical Research Institute) for the translational research activity undertaken.



Publications 2014 in Collaboration with IMIM

Dr. Valverde published 6 scientific articles in 2014. Below you will find those in collaboration with IMIM.

- Batalla A, Crippa JA, Busatto GF, Guimaraes FS, Zuardi AW, Valverde O, Atakan Z, McGuire PK, Bhattacharyya S, Martín-Santos R. Neuroimaging studies of acute effects of THC and CBD in humans and animals: a systematic review. *Curr Pharm Design* 2014;20(13):2168-2185. IF 3.288. Q1.
- García AM, Brea J, Morales-García JA, Pérez DI, González A, Alonso-Gil S, Gracia-Rubio I, Ros-Simó C, Conde S, Cadavid MI, Loza MI, Pérez-Castillo A, Valverde O, Martínez A, Gil C. Modulation of cAMP-specific PDE without emetogenic activity: new sulfide-like PDE₇ inhibitors. *J Med Chem* 2014;57(20):8590-8607. IF 5.48. Q1.
- Segura-Puimedon M, Sahún I, Velot E, Dubus P, Borralleras C, Rodrigues AJ, Valero MC, Valverde O, Sousa N, Herault Y, Dierssen M, Pérez-Jurado LA, Campuzano V. Heterozygous deletion of the Williams-Beuren syndrome critical interval in mice recapitulates most features of the human disorder. *Hum Mol Genet* 2014;23(24):6481-6494. IF 6.677. Q1.

Genes and Diseases

ASSOCIATED RESEARCH GROUP

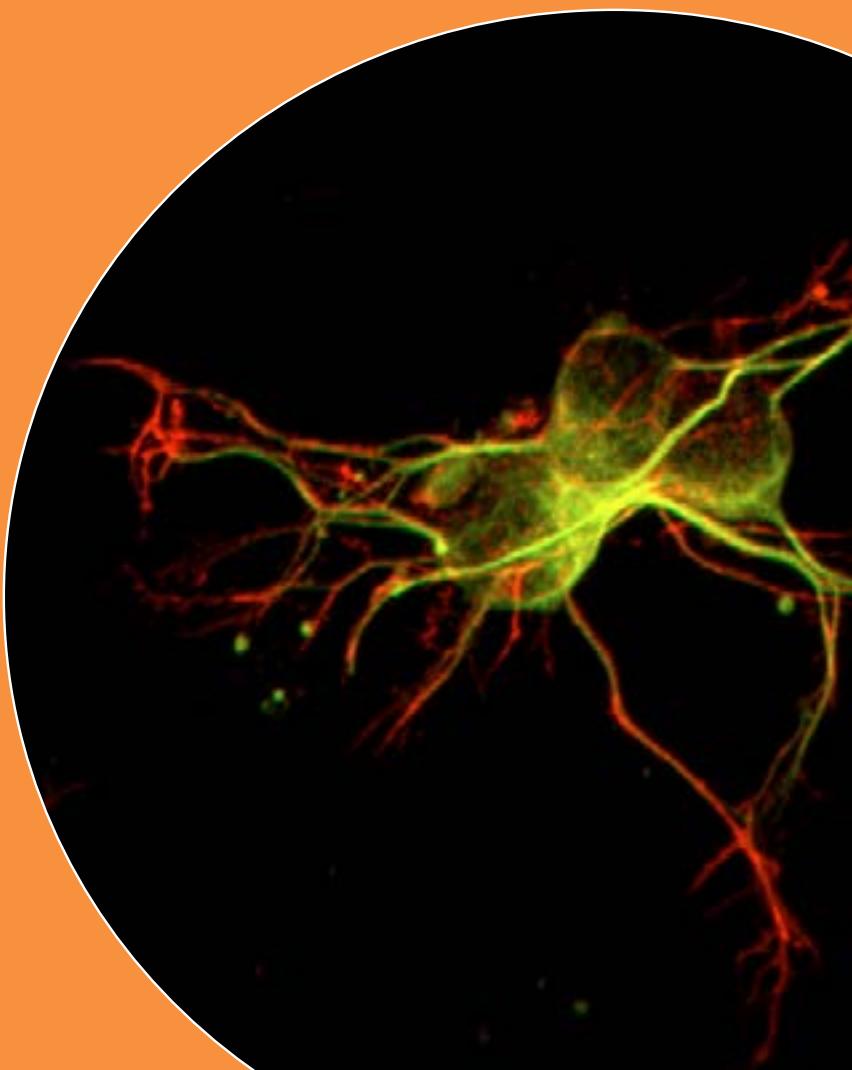


Coordinator

Mara Dierssen

Members

Júlia Albaigès Ràfols
Silvina Catuara
Belén de Sanristobal Alonso
José Antonio Espinosa Carrasco
Marta Fructuoso Castellar
Thomas Gener
Linus Manubens Gil
María Martínez de Lagrán Cabredo
Susana Molas Casacuberta
Mireia Ortega Crespo
Susana de Sola Llopis



The Genes and Diseases group is a CRG (Centre for Genomic Regulation) research group associated with IMIM.

Our overall goal is to understand how the neuronal architecture and connectivity constrain mesoscopic network activity and influence the flow and storage of information in neuronal circuits. Alterations in the architectural properties of the neurons are observed in most mental disorders and are assumed to be the cause of cognitive disturbances. We

focus mainly on intellectual disability and neuropsychiatric disorders, using a systems neuroscience approach that combines behavioral and neurobiological analyses in mice, with results from cellular models. Based on our understanding of the genetic and molecular circuits disturbed in intellectual disability, we have initiated a clinical trial in Down syndrome (de la Torre et al, 2013) and fragile X syndrome (FRAXA Foundation).

Publications 2014 in Collaboration with IMIM

Dr. Dierssen published 10 scientific articles in 2014. Below you will find those in collaboration with IMIM.

- De la Torre R, de Sola S, Pons M, Duchon A, Martínez de Lagrán Cabredo M, Farré M, Fitó M, Benejam B, Langohr K, Rodríguez J, Pujadas M, Bizot JC, Cuenca A, Janel N, Catuara S, Covas MI, Blehaut H, Herault Y, Delabar JM, Dierssen M. Epigallocatechin-3-gallate, a DYRK1A inhibitor, rescues cognitive deficits in Down syndrome mouse models and in humans. *Mol Nutr Food Res* 2014;58(2):278-288. IF 4.909. Q1.
- Pujol J, del Hoyo L, Blanco-Hinojo L, de Sola S, Macià D, Martínez-Villavella G, Amor M, Deus J, Rodríguez J, Farré M, Dierssen M, de la Torre R. Anomalous brain functional connectivity contributing to poor adaptive behavior in Down syndrome. *Cortex* 2014;64:148-156. IF 6.042. Q1.
- Segura-Puimedon M, Sahún I, Velot E, Dubus P, Borralleras C, Rodrigues AJ, Valero MC, Valverde O, Sousa N, Herault Y, Dierssen M, Pérez-Jurado LA, Campuzano V. Heterozygous deletion of the Williams-Beuren syndrome critical

interval in mice recapitulates most features of the human disorder. *Human Mol Genet* 2014;23(24):6481-6494. IF 6.677. Q1.

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Genetics

ASSOCIATED RESEARCH GROUP



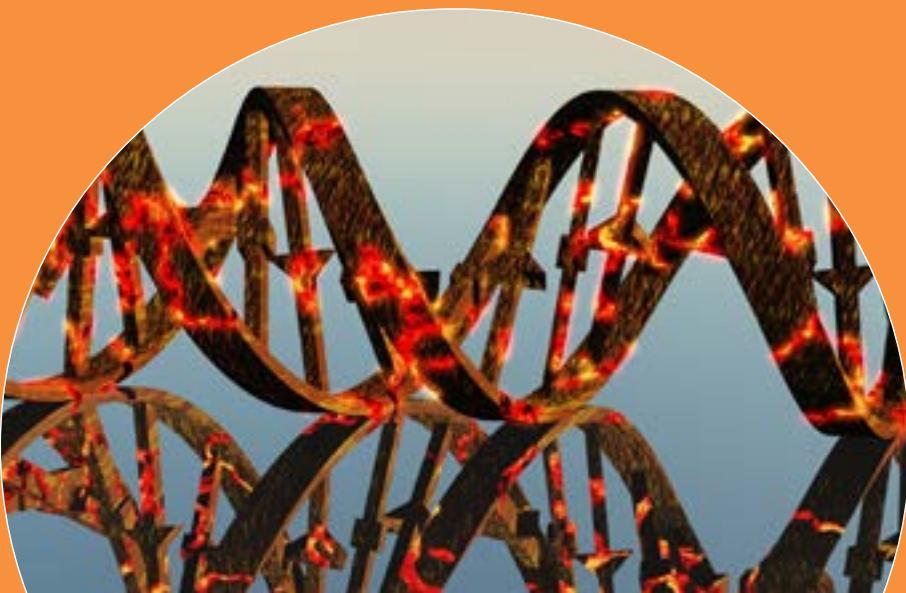
Coordinator

Luis Alberto Pérez Jurado

Members

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Aïda Homs Raubert
Marcos López Sánchez
Andrés Medrano Muñoz
M. Gabriela Palacios Verdú
Débora Pérez García
Judith Reina Castillón
Benjamin Rodríguez Santiago
Clara Serra Juhé

The Genetics Unit of UPF is a multidisciplinary research group associated with the IMIM, composed of medical doctors, biologists, a biostatistician, a psychologist, information scientists and technicians. It coordinates the medical genetics activities and multidisciplinary clinics for rare diseases at the Hospital del Mar. We focus our research on genomic structural variation and several neurodevelopmental genetic disorders affecting behavior, language and personality, including mutational mechanisms, evolutionary studies, and the use of mouse models of disease, along with the necessary translational research in medical genetics. We aim to translate the research findings directly into clinical practice, improving clinical protocols, diagnostic tools and developing novel therapies.



Publications 2014 in Collaboration with IMIM

Dr. Pérez-Jurado published 7 scientific articles in 2014. Below you will find those in collaboration with IMIM.

- Argente J, Flores R, Gutiérrez-Arumí A, Verma B, Martos-Moreno GA, Cuscó I, Oghabian A, Chowen JA, Frilander MJ, Pérez-Jurado LA. Defective minor spliceosome mRNA processing results in isolated familial growth hormone deficiency. *EMBO Mol Med* 2014;6(3):299-306. IF 8.245. Q1.
- Binelli C, Subira S, Batalla A, Muñiz A, Sugranyes G, Crippa JA, Farré M, Pérez-Jurado LA, Martín-Santos R. Common and distinct neural correlates of facial emotion processing in Social Anxiety Disorder and Williams Syndrome: a systematic review and voxel-based meta-analysis of functional resonance imaging studies. *Neuropsychologia* 2014;64:205-217. IF 3.451. Q2.
- González JR, Cáceres A, Esko T, Cuscó I, Puig M, Esnaola M, Reina J, Siroux V, Bouzigon E, Nadif R, Reinmaa E, Milani L, Bustamante M, Jarvis D, Antó JM, Sunyer J, Demenais F, Kogevinas M, Metspalu A, Cáceres M, Pérez-Jurado LA. A common 16p11.2 inversion underlies the joint

susceptibility to asthma and obesity. *Am J Hum Genet* 2014;94(3):361-72. IF 10.987. Q1.

- Martos Moreno GA, Serra-Juhé C, Pérez-Jurado* LA, Argente J* (*co-last authors). Under-diagnosed Beckwith-Wiedemann syndrome among early-onset obese children. *Arch Dis Child* 2014;99(10):965-967. IF 2.905. Q1.
- Segura-Puimedon M, Sahún I, Velot E, Dubus P, Borralleras C, Rodrigues AJ, Valero MC, Valverde O, Sousa N, Herault Y, Dierssen M, Pérez-Jurado LA, Campuzano V. Heterozygous deletion of the Williams-Beuren syndrome critical interval in mice recapitulates most features of the human disorder. *Hum Mol Genet* 2014;23(24):6481-6494. IF 6.677. Q1.

Ongoing Research Projects 2014 in Collaboration with IMIM

- Caracterización de inversiones submicroscópicas ancestrales del genoma humano y su contribución a enfermedad germinal y somática
 - > Fondo de Investigación Sanitaria. ISCIII (8PI13/02481)
 - > Principal investigator: Pérez Jurado, Luis Alberto

Laboratory of Neuropharmacology

ASSOCIATED RESEARCH GROUP



Coordinator

Rafael Maldonado López

Members

Roberto Cabrera Ortega
Cristina Fernández Avilés
África Flores de los Heros
María González Gomis
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Elk Kossatz de Mello
Samantha Mancino
Elena Martín García
Raquel Martín García
Sueli Mendonça Netto
Neus Morgui Valls
Roger Negrete Buela
Antonio Ortega Álvaro
Francisco Porrón López
Dulce Real Muñoz
Victoria Salgado Mendialdua

The Laboratory of Neuropharmacology (NeuroPhar) is a UPF research group associated with IMIM. NeuroPhar studies the neurobiological substrate of drug addiction, pain, cognitive deficits, affective and eating disorders. The main interest of this research group is the development of research lines aimed at the identification of new therapeutic targets in the central nervous system.

The Laboratory of Neuropharmacology is interested in the neurochemical and neuroanatomical bases of addiction induced by opioids, cannabinoids, nicotine and psychostimulants.



Publications 2014 in Collaboration with IMIM

Dr. Maldonado published 24 scientific articles in 2014. Below you will find those in collaboration with IMIM.

- Robledo P, Martín-García E, Aso E, Maldonado R. Genetically modified mice as tools to understand the neurobiological substrates of depression. Curr Pharm Des. 2014;20(23):3718-3737. IF 3.288. Q1.



Achievements 2014

Scientific Publications

Research Grants and Transfer of Results

Clinical Guidelines

Doctoral Theses

Core Facilities

Ethical Committees

Communication

Management

Governing Bodies



Scientific Publications

During 2014 IMIM has maintained the upward trend in the number of articles published. The number of publications in journals of the 1st quartile increases every year, as illustrated in the tables and figures provided in this section.

Number of national and international publications in the past 5 years

TYPE OF DOCUMENT	2010	2011	2012	2013	2014	TOTALS
INTERNATIONAL PUBLICATIONS						
Original articles	437	495	567	598	635	2,732
Reviews	51	65	70	80	81	347
Case notes and short articles	38	63	80	58	67	306
Books	0	1	1	1	0	3
Book chapters	5	13	4	16	10	48
Subtotal	531	637	722	753	793	3,436
SPANISH PUBLICATIONS						
Original articles	83	107	65	74	64	393
Reviews	51	44	36	33	43	207
Case notes and short articles	35	54	27	28	36	180
Books	9	8	4	3	2	26
Book chapters	56	43	4	33	1	137
Doctoral theses read	31	34	37	43	59	204
Subtotal	265	290	173	214	205	1,147
TOTAL PUBLICATIONS	796	927	895	967	998	4,583



Bibliometric data

- Total number of articles published in national and international journals: 926 (original articles, reviews and case notes, and short articles)
- Percentage of articles published in journals with an impact factor: 91% (850/926)
- Percentage of articles published in journals in the first quartile of their category according to JCR: 61% (525/850)

See all Cancer Programme publications:

http://www.imim.cat/media/upload//arxius/memoria2014/publicaciones_cancer_2014.pdf

See all Neurosciences Programme publications:

http://www.imim.cat/media/upload//arxius/memoria2014/publicaciones_neurociencies_2014.pdf

See all Biomedical Informatics Programme

publications: http://www.imim.cat/media/upload//arxius/memoria2014/publicaciones_infobio_2014.pdf

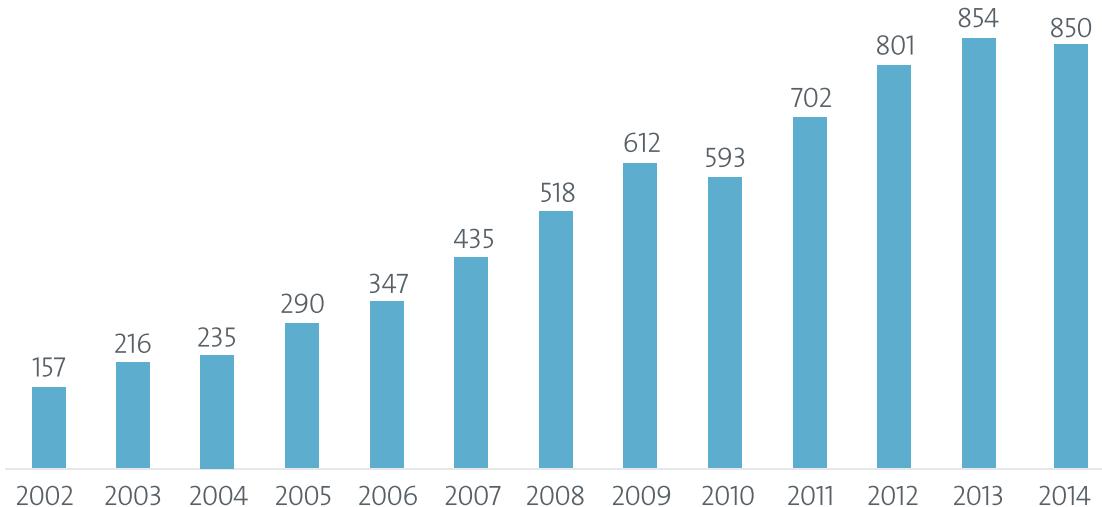
See all Epidemiology and Public Health Programme publications:

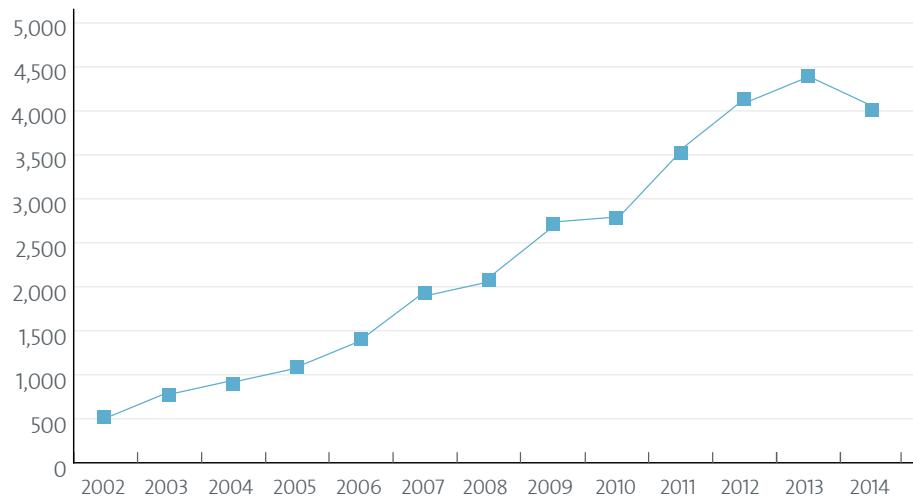
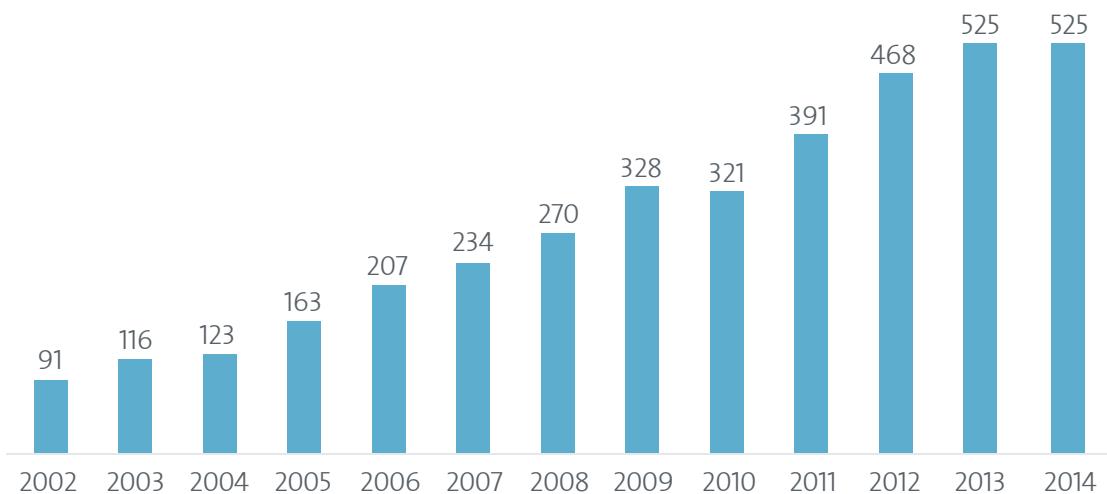
http://www.imim.cat/media/upload//arxius/memoria2014/publicaciones_epi_2014.pdf

See all Research in Inflammatory and Cardiovascular Disorders Programme publications:

http://www.imim.cat/media/upload//arxius/memoria2014/publicaciones_ricad_2014b.pdf

Trend of number of articles published with an impact factor between 2002 and 2014



Accumulated impact factor of articles published between 2002 and 2014**Number of articles published in the first quartile between 2002 and 2014**



Research Grants and Transfer of Results

Since January 2014, IMIM has submitted a total of 316 research grant applications, which means 30% more applications than were submitted in 2013.

A total of 55 agreements have been signed with private companies to carry out services or for sponsorship and 155 agreements have been signed for carrying out clinical trials for an overall sum of almost seven million euros – a considerable increase over the previous year. A total of 75 agreements have also been signed with other hospitals for carrying out different clinical trials promoted by our hospital.

Furthermore, in 2014, the Agency for Management of University and Research Grants (AGAUR) has recognized 31 IMIM groups (4 emerging groups) as Consolidated Research Groups.

► Grants for Projects

With regard to competitive grants, the classic call for proposals of the Spanish Ministry for Economy and Competitiveness

(MINECO) has again suffered a delay of more than eight months in publication and the four proposals, which are still awaiting a decision, were not submitted until September. The 4 of them are provisionally approved.

Of the 42 project applications submitted to calls for research projects in health by the Carlos III Institute of Health (ISCIII), 14 projects have been obtained – a 33.3% success rate, which is the average for Spain. An independent clinical research project was obtained, as was funding for an Action Plan to Promote Clinical and Translational Research project, for which only the accredited Healthcare Research Institutes (IIS) applied.

Two projects were obtained, one as coordinators and the other on an individual basis, in the call for applications by Fundació La Marató de TV3 for “Research projects on neurodegenerative diseases”.

With regard to international calls for proposals, the new Horizon 2020

programme has been implemented and the number of international proposals has increased by more than 50%. During 2015 2 proposals have been approved, one of them as a Coordinator.

A new project has also been approved, funded by the Innovative Medicine Initiative.

On the other hand, the result of the call for Integrated Excellence Projects (PIE), restricted to the IIS, was disappointing. This mode of competitive funding has, since 2013, replaced the structural funding that the ISCIII had provided to the IIS on a regular basis (approximately 0.8-1 million euros per IIS). In the 2013 edition, these grants were awarded to 12 of the 18 IIS, but in 2014 they have been awarded to 5 of the 22 accredited IIS to date, and the two proposals submitted by IMIM were ruled out. Finally, in an extraordinary call of the “2015 Plan for development of clinical and translational research”, published unexpectedly in October, funding was distributed to all the IIS and IMIM received €150,000.

► Personnel Grants

With regard to personnel grants, in the MINECO human resources calls for applications, an agreement was signed to hire a Ramon y Cajal researcher and a candidate was approved for the Postdoctoral Training Grants (formerly, the Juan de La Cierva grants). With respect to AGAUR, 2 predoctoral grants were awarded.

The following were funded in the ISCIII human resources calls for applications: 3 intensifications, 1 Sara Borrell postdoctoral grant, 2 Rio Hortega post-residency grants, one person who became a Miguel Servet II grant recipient, one Juan Rodés grant recipient and one management person via IIS.

In relation to calls for grants by IMIM under the Programme Contract, management of the intensification programme, funded with €57,000, has made it possible to intensification for two doctors from Hospital del Mar. A Jordi Gras grant has also been awarded for training in research for doctors who will finish their residence in 2014; the grant will be provided throughout 2015.

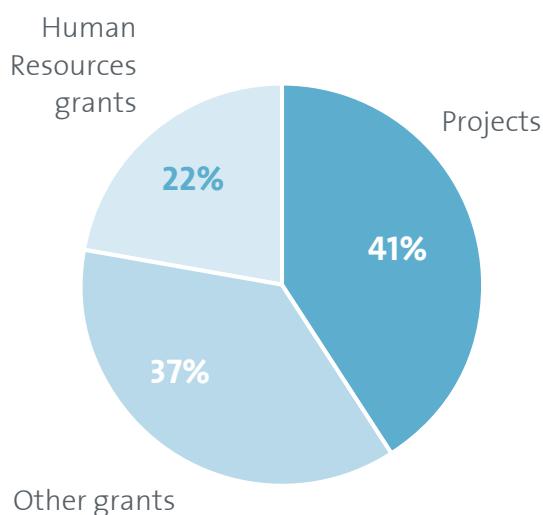


Achievements 2014

Research Grants and Transfer of Results

Finally, the call for applications for a grant for training in foreign research centers for specialist medical personnel at Parc de Salut Mar has been issued and the grant awarded for the first second year running.

Grants awarded in 2014 by area



Transfer of Results

In 2014, 3 patents were submitted, of which one is a PCT (Patent Cooperation Treaty), another is an extension of a PCT and the other two are European patents. There are also 2 more currently being prepared.

The patents transferred non-exclusively in 2013 have begun processing in the national phases; one of them in Europe and the USA and the other in the USA, Canada, Australia, New Zealand, Brazil, China, India, South Korea, Russia, South Africa, and Japan.

The Innovation Department of the hospital has published the first PSMAR Innovation Competition and proposals are currently being accepted.

The IMIM Research Service obtained funding in the VANUNI call by ACC10. By means of this instrument, ACC10 acknowledges the units that become part of its Technological Valuation Unit network.

See all grants:

http://www.imim.cat/media/upload//arxius/memoria2014/ajuts_tots_2014.pdf



Clinical Guidelines

As part of the transfer to clinical practice, IMIM researchers have taken part in the following clinical guides:

- Ana M. Giménez-Arnau. The EAACI/GA²LEN/EDF/WAO Guideline for the definition, classification, diagnosis and management of urticaria. Academia Española de Dermatología y Venereología and 19 other societies. Published in: Allergy 2014; DOI: 10.1111/all.12313.
- Jaume Roquer. Catálogo de implantes neurológicos. Grupo de implantes neurológicos. Ministerio de Sanidad, Servicios Sociales e Igualdad.
- Esther Barreiro. Update on Limb Muscle Dysfunction in Chronic Obstructive Pulmonary Disease. Executive Summary. American Thoracic Society/European Respiratory Society Ad Hoc Committee on Limb Muscle Dysfunction in COPD. Published in: Am J Respir Crit Care Med. 2014 May 1;189(9):e15-62. DOI: 10.1164/rccm.201402-0373ST.
- Esther Barreiro. Prevención y cribado del cáncer de pulmón: factores de riesgo. Guía de diagnóstico y tratamiento del carcinoma broncogénico de células no pequeñas. Sociedad Española de Neumología y Cirugía Torácica (SEPAR). Arch Bronconeumol 2014. In process.
- Esther Barreiro. Evaluación y manejo clínico de la disfunción muscular en los pacientes con enfermedades crónicas respiratorias. Sociedad Española de Neumología y Cirugía Torácica (SEPAR). Arch Bronconeumol 2014. In process.
- Carles Besses. Manual de recomendaciones en neoplasias mieloproliferativas crónicas filadelfia negativas. Grupo Español de Enfermedades Mieloproliferativas Filadelfia Negativas (GEMFIN). Sociedad Española de Hematología y Hemoterapia (SEHH).
- Carles Besses. Pathology reporting of bone marrow biopsy in myelofibrosis. Application of the Delphi consensus process to the development of a



standardized diagnostic report. Accepted for publication in: J Clin Pathol.

- Esther Marco. Clinical Practice Guideline for the Diagnosis and Treatment of Patients with Chronic Obstructive Pulmonary Disease (COPD) – Spanish Guideline for COPD (GesEPOC). Sociedad Española de Neumología y Cirugía Torácica. Published in: Arch Bronconeumol 2014;50(Supl 1):2-17.
- Josep Comín Colet and Helena Tizón Marcos. Comments on the 2014 ESC Guidelines on the diagnosis and management of hypertrophic cardiomyopathy. A critical view from the perspective of Spanish cardiology. Sociedad Española de Cardiología. Published in: Eur Heart J 2014 Oct 14;35(39):2733-79. DOI: 10.1093/eurheartj/ehu284. Epub 2014 Aug 29.
- Pere Benito. Recomendaciones para una prescripción segura de antiinflamatorios no esteroideos: consensus document prepared by experts nominated by three scientific societies (SER-SEC-AEG). Sociedad Española de Reumatología, Sociedad Española de Cardiología and Sociedad Española de Gastroenterología. Reumatol Clin 2014;10(2):68-84.
- Lluís Gallart. Valoració preoperatòria de la via aèria. Departament de Salut

and Societat Catalana d'Anestesiologia, Reanimació i Terapèutica del Dolor. Published by CatSalut.

- Ana M. Giménez-Arnau. Guidelines for diagnosis, prevention and treatment of hand eczema. European Society of Contact Dermatitis (ESCD). JDDG 2014; DOI: 10.1111/ddg.12510.
- Jaume Roquer. Guía de actuación clínica en la hemorragia subaracnoidea. Sistématica diagnóstica y tratamiento. Sociedad Española de Neurología. Published in: Neurologia 2014; <http://dx.doi.org/10.1016/j.nrl.2012.07.009>.
- Jaume Roquer. Guía para el tratamiento del infarto cerebral agudo. Sociedad Española de Neurología. Published in: Neurologia 2014; <http://dx.doi.org/10.1016/j.nrl.2011.09.012>.
- Jaume Roquer. Guía de actuación clínica en la hemorragia subaracnoidea. Sistématica diagnóstica y tratamiento. Sociedad Española de Neurología. Published in: Neurologia 2014; <http://dx.doi.org/10.1016/j.nrl.2012.07.009>.
- José Antonio Carrión. Documento del II Consenso español sobre el tratamiento de la Hepatitis C. Sociedad Española para el Estudio del Hígado. Published in: <http://aeeh.es/wp-content/uploads/2015/04/>

II-Conferencia-de-consenso-sobre-el-tratamiento-de-la-hepatitis-C-de-la-AEEH.pdf.

- Xavier Castells. Impacto de la cirugía para el recambio de prótesis de rodilla en el Sistema Nacional de Salud. Colección: Informes, estudios e investigación. Ministerio de Sanidad, Servicios Sociales e Igualdad. Published by: Agència de Qualitat i Avaluació Sanitàries de Catalunya
http://aquas.gencat.cat/web/.content/minisite/aquas/publicacions/2014/pdf/impacto_cirugia_recambio_protesis_rodilla_SNS_red_aquas2014.pdf
- Xavier Castells. Propostes per a la millora dels sistemes de comptabilitat analítica del cost per pacient hospitalitzat. Versió 7. Col·lecció: Grup de Costos de la Central de Balanços. Published by: CatSalut (Central de Balanços).



Doctoral Theses

- Abulí A. Genetic susceptibility variants associated to colorectal cancer. University of Barcelona. Director: Andreu M, Castellví-Bel S. Date of defense: 10/02/2014.
- Antolín A. The impact of polypharmacology on chemical biology. Pompeu Fabra University. Director: Mestres J. Date of defense: 09/10/2014.
- Aparicio E. Natural Antisense Transcripts control LEF1 gene expression. Pompeu Fabra University. Director: García de Herreros A. Date of defense: 07/02/2014.
- Aznar G. Monitorización de atomoxetina en matrices biológicas pediátricas no convencionales. Autonomous University of Barcelona. Director: Farré M, García-Algar O. Date of defense: 31/10/2014.
- Balsiger NA. The role of Cyclin O in ER stress signalling. Pompeu Fabra University. Director: Gil-Gómez G. Date of defense: 19/12/2014.
- Barbaglia G. Common mental disorders: Evaluating their impact on disability and the role of socioeconomic factors. Pompeu Fabra University. Director: Alonso J. Date of defense: 24/11/2014.
- Barra CM. Sinusoid-lining cells are novel myeloid-endothelial innate cells that form splenic niches for marginal zone B cell activation and plasma cell survival. Pompeu Fabra University. Director: Aramburu J, Cerutti A. Date of defense: 06/10/2014.
- Bellmunt S. Estudio para el establecimiento de un sistema de priorización de listas de espera de cirugía de varices. Autonomous University of Barcelona. Directors: Armengol-Carrasco M, Clarà A. Date of defense: 03/10/2014.
- Benítez A. Patrones dietéticos y componentes nutricionales específicos asociados con la obesidad. Universitat Pompeu Fabra. Director: Schröder H. Date of defense: 10/02/2014.
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Core Facilities

Leonor Alloza Gay
Marta Bódalo Torruella
Montserrat Hidalgo Salgado
Sergi Mojal Garcia
Piedad Navarro Moya
Lara Nonell Mazelón
Eulàlia Puigdecanet Riubugent
Eulàlia Puigmartí Pich
Rocío Ruiz Cortés
Núria Somoza Abelló
Montserrat Torà Barnadas

The Scientific and Technical Services (SCT) are a variety of services with the objective of providing researchers with both scientific support and the infrastructure necessary for the various aspects of their research.

Each service has a specific highly qualified staff responsible of daily functioning and scientific advisement under a SCT unique general manager that is in charge of coordination and organization.

The services offered are based on:

- Scientific consulting
- Common laboratories and experimental areas with specific legal and technical requirements
- High-technology equipment for biomedical research

Besides using its own scientific and technical services, IMIM researchers can also have access to those belonging to the CRG and the UPF, located in the same building of the PRBB. These SCT

add to and complement the services already available, covering fields such as Genomics, Proteomics, Cytometry and Microscopy.

Services are organized under three main areas:

- Internal Services
- Common Areas and Laboratories
- Internal and External Services

Scientific and Technical Services have obtained the Quality Management System Certification under ISO 9001:2008.

Internal Services

► Consulting Service on Methodology for Biomedical Research

The objective of the Consulting Service on Methodology for Biomedical Research (AMIB) is to offer support on methodology and statistics applied to biomedical research to investigators of Parc de Salut Mar and health care centers and IMIM.

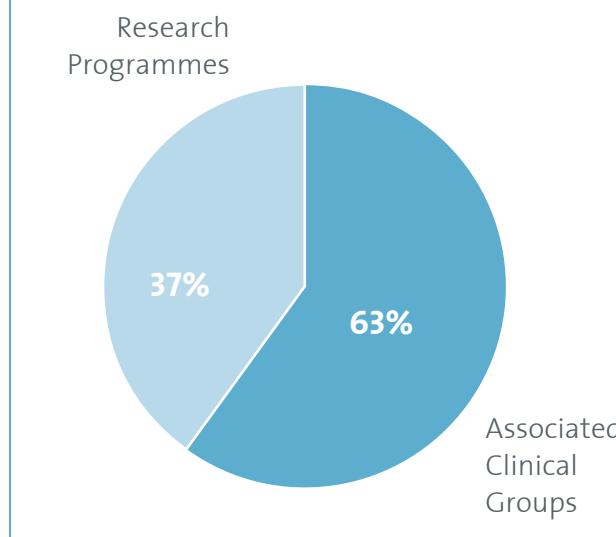
The services offered are:

- Consultation regarding protocol design
- Sample size estimation

- Creation of randomization lists
- Design, management and quality control of data bases
- Statistical analysis
- Report writing
- Consulting on presentations and publications

There were a total of 736 consultations in 2014, of which 63% corresponded to associated clinical groups and 37% corresponded to research programmes.

Consultations 2014





Consultations by research programme 2014

CONSULTATIONS	FREQUENCY	PERCENTAGE
Research Programme on Cancer	117	43.1
Research Programme on Inflammatory and Cardiovascular Disorders	104	38.2
Research Programme on Neurosciences	36	13.2
Research Program on Epidemiology and Public Health	9	3.3
Management	6	2.2
TOTAL	272	100.0%

Activity

- Monitoring of the process of supplying liquid nitrogen to the tanks
- Monitoring of the process of refilling the nitrogen tanks
- Process of supplying liquid nitrogen to portable containers
- Monitoring of proper freezer operation with a system of alarms connected to the IMIM Maintenance Service
- Assignment of space in the -80° C freezers and LN₂ containers
- Temperature control of all refrigeration units and issuing of reports
- Storage and distribution of dry ice
- Technical support

Equipment

- 50 -80°C ultra-low temperature freezers
- 4 temperature-controlled rooms (Temp and O₂ in one room)
- 3 -20°C chambers
- 4 4°C chambers
- 6 combined refrigerator/freezers (double sensor)
- 2 -20°C freezers

► Freezers and Cryopreservation

This service is dedicated to the maintenance and supervision of the centralized large freezer area as well as the area where the liquid nitrogen tanks are located.

All the equipment has sensors to monitor the different parameters of the units.

Every week, the temperature records are sent to the different research groups that use the equipment.

In 2014, a total of 9 new requests for cryopreservation space were processed.

► Cell Culture Service

Preparation of culture media

There is a service for users to prepare cell culture media for them on demand.

In 2014, a total of 181 applications for the mycoplasma test were received and a total of 1199 culture media were prepared under request.

Cell line maintenance service

The bank has more than 140 tumour and normal cell lines, kept frozen in liquid nitrogen.

The service includes maintenance of the bank of cell lines, replacement of stocks and distribution of frozen vials to users who have requested them.

Requests to the cell line bank in 2014:

ORIGIN OF USERS	ORDERS	
	REQUESTS	PERCENTAGE
IMIM	103	84,43%
Centres PRBB (non-IMIM)	18	14,75%
External Centres (non-PRBB)	1	0,8%
TOTAL	122	100%

Projects funded

2013-2015: Support Agreement for research in the SNS. FIS/ISCIII-Fondo de Investigación Sanitaria (Healthcare Research Fund). ISCIII. CA12/00338

► Sterilization and Cleaning

The Sterilization and Cleaning Service provides support for the research laboratories in keeping the facilities clean (lab tables, fume-cupboard glass, cabinets), as well as taking care of fungible material.

The service carries out daily sterilization controls and all records and reports are filed for examination.



Common Areas and Laboratories

► Histology

The Histology Area consists of a laboratory with the necessary infrastructure for processing tissues.

Equipment

- Leika Crysostat Microtome
- Paraffin microtome
- Leika optical microscope
- Selecta oven up to 200°C
- Leika paraffin dispenser
- Myr paraffin-block dispenser
- Cooling and heating plates
- Battery for hematoxylin-eosin staining
- Heating baths
- Refrigerator

► Microscopy

Microscopy Room

- Fluorescence Microscopy, equipped with a system for recording digital images
- 2 Dual-view optical microscopes
- 2 Fluorescence microscopes

Transmission Electron Microscopy

The service is offered only under collaboration or self-service for staff instructed in their use and functioning:

- Preparation of samples for their study with the electron microscope
- Observation and study of samples with the electron microscope
- Electronic micrographs (analogue and digital photography reprints) taken from the samples
- Interpretation of the results obtained from the examination using the electron microscope and interpretation of the electron micrographs obtained from the study samples

The types of samples suitable for study (always from human or animal tissue samples) are the following: culture of cells processed using the mono-layer or roll procedure; samples from any human or animal organ or tissue, including blood, multiple fluids with cells and cilia samples; and microbiological samples in tissues or microbiological samples coming from cultures.

► Radioactive Facilities

The Scientific & Technical Services of IMIM have a radioactive facility of category 2, IRA - 1936 (IR-B/360/92). The authorization to build and put this service into operation was granted on September 21, 1993 by the Department of Industry and Energy of the Government of Catalonia.

It consists of a laboratory equipped with the necessary tools and equipment to carry out radioactive experimental procedures and supplied with the protective gear necessary for the safe handling and storage of radioactive isotopes.

► Culture Rooms and P2

The IMIM cell-culture area provides users with all the infrastructure and equipment necessary for culturing mammalian cells.

Facilities

- 4 conventional culture rooms, with a total of 15 biosafety booths, 14 CO₂ incubators at 37°C, 1 hypoxia incubator and 1 incubator at 32°C
- A level-2 biosafety room (BSL2) approved by the Department of Agriculture, Food and Rural Action (Government of Catalonia), with 2 biosafety booths and 2 CO₂ incubators

- Equipment: 1 inverted microscope in each room, 4 systems for capturing images from the microscope, 2 inverted fluorescence microscopes.

► Telephone Survey Unit

The Telephone Survey Unit provides management, organization and adaptation of a space that has all the requirements for carrying out telephone surveys by the different research groups.

The unit has two boxes (A and B), where the telephone surveys can be carried out after the space has been booked.

Internal and External Services

► Microarray Analysis Service

The Microarray Analysis Service (SAM), with the AffymetrixGeneChip® research and diagnostics platform, offers an integrated service for cytogenetic, genomic and transcriptomic studies. The experimental services offered are the sample quality, quantification and microarray processing. Experimental design consultancy, statistical data analysis and guidance regarding biological interpretation with specific tools are also included.



Arrays of human, mouse and other species are available.

Applications

- Discovery of biomarkers involved in biological processes
- Gene expression profile studies
- Detection of genes and pathways involved in diseases and pharmacological treatments
- Pharmacogenomics and toxicogenomics studies
- Alternative splicing detection
- Dose-effect studies
- Classification of samples based on gene signatures
- Predictive models associated with genes
- miRNA analysis
- Microarray analysis of degraded samples (ex: FFPE) and low quantity samples (from 500pg of total RNA)

Equipment

- AffymetrixGeneChip® System: Research platform (GCS3000) and diagnostics platform (GCS3000DX v.2)

- GeneChip® Oven 645
- GeneChip® Fluidics Station 450
- GeneChip® Scanner 3000 7G
- Bioanalyzer 2100 (Agilent Technologies)
- Nanodrop Spectrophotometer ND-1000 (Nanodrop Technologies)
- Qubit® 2.0 Fluorometer (Invitrogen, Life Technologies) (acquired in 2014)

Activity

A total of 530 arrays were processed in 2014.

GENOMICS	80
EXPRESSION	385
miRNA	65
TOTAL	530

The services carried out correspond to the following centres:

CENTRES	PROJECTS	PERCENTAGE
IMIM	31	56.3%
PRBB	3	5.5%
External Centres (no PRBB)	21	38.2%
TOTAL	55	100%

The Microarray Analysis Service is subscribed to the European microarray quality control programme, organized by the CEQA (Cytogenic European Quality Assessment).

Publications

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- Prat-Vidal C, Gálvez-Montón C, Nonell L, Puigdecanet E, Astier L, Solé F, Bayés-Genís A. Identification of temporal and region-specific myocardial gene expression patterns in response to infarction in Swine. *PLoS ONE* 2013;8(1): e54785. IF 3.534 Q1

Projects Funded

2013-2015: Contract research support in the SNS. FIS/ISCIII-Fondo de Investigación Sanitaria. ISCIII. CA12/00354.

► BIOBANC MARBiobanc

The biobank of Parc de Salut Mar (MARBiobanc) is a public, not-for-profit facility which stores various collections of



biological samples available to the whole scientific community. It is organized as a technical unit with regards to quality, order and destination.

It has restricted access facilities which are equipped with the security control mechanisms necessary to ensure the correct storage of the biological samples, their confidentiality and their traceability in accordance with all the Spanish ethical and legal regulations.

The Biobank Service is certified by AENOR to ISO 9001:2008.

Available human biospecimen collections

- Cryopreserved tumor bank
- Leftover diagnostic tissues
- Hematological malignancies
- Cerebral infarction
- Lung diseases (Lung Biobank Platform)
- Influenza A (H1N1)
- DNA from oncological diseases
- DNA from cardiovascular diseases
- Alzheimer disease
- Colorectal cancer

Activity

PARAMETER	NUMBER	VARIATIONS COMPARED TO 2013
Requests received	51	+2%
Samples transferred	3,711	+45%

New collections held: Two new collections of the research line have been added to the Biobank area.

The Biobank subscribed to the European quality control programme, organized by the IBBL (Integrated Biobank of Luxembourg).

Projects funded

- Instituto de Salud Carlos III/ FEDER (RD09/0076/00036 and PT13/0010/0005)
- Xarxa de bancs de tumors sponsored by Pla Director d'Oncologia de Catalunya

Other Services

► Animal Facility (PRBB)

The PRBB Animal Facility is one of the most complex and robotized installations of its kind in Europe and is fully accredited by AAALAC, the International Association for the Assessment and Accreditation of Laboratory Animal Care. This is the maximum international certification and implies an acknowledgement of the quality of the operation of the facility which translates into better practices and research results. The main animal models are zebrafish and mice, but it is also possible to use rats, hamsters, rabbits, frogs and axolotls.

The animal facility covers 4,500 m² with six independent units, which are connected and run under a single management:

- The aquatic animal area (zebrafish and *Xenopus*).
- The specific pathogen germ free (SPF) barrier zone for rodents, with modern auto-ventilated microisolators and three support laboratories.
- A transgenesis area with large laboratories (250 m²) for the production of genetically modified mice.

- The experimental area with laboratories, surgery rooms and an irradiator.
- The quarantine area with its own access changing rooms and embryonic transfer re-derivation laboratory.
- A conventional animal facility, located at an adjacent building, which is connected via a tunnel with the PRBB, and has a surface area of 1,300 m², mainly for studies with animal models in neuropharmacology and immunology.

The number of Animal Facility users in 2014 were 378.

The CEEA-Ethic Committee of Animal Experimentation (in USA, IACUC-Institutional Animal Care and Use Committee) has more than 200 different procedures approved. Its main objective is the legally required evaluation of all experimental procedures involving animals, taking into account the internationally accepted 3R rule (Reduction, Refinement and Replacement).

The IACUC conducted 11 meetings where 84 experimental procedures were evaluated.



CENTER	NUMBER	PERCENTAGE
PRBB	8	9.5%
UPF	20	23.8%
CRG	18	21.4%
IMIM	16	19%
CMRB	7	8.4%
External centers	15	17.8%
TOTAL	84	100%

► Clinical Research Unit (IMIM)

The Clinical Research Unit has 12 beds and capacity to run different studies at the same time. The equipment is especially suitable for phase I clinical trials in drug development, for bioequivalence studies or for nutritional interventions. The studies are performed in accordance with Good Clinical Practice (GCP) standards. It is accredited by the Government of Catalonia.

The Ethics Committee for Clinical Research (CEIC-Parc de Salut Mar) evaluates study protocols in accordance with Spanish and

European regulations. The Committee has two regular meetings every month. It is accredited by the Government of Catalonia and the Spanish Medicines Agency.

Available services

- Clinical trials in Phase I and Phase II
- Clinical trials of efficacy and tolerability
- Evaluation of the abuse potential of new drugs
- Neuropsychopharmacology and behavioural pharmacology
- Methodological advice for clinical trial protocols
- Pharmacokinetic studies:
 - Bioavailability, including bioequivalence studies of generics
 - Metabolism and identification of metabolites

► Health-Related Quality of Life Questionnaires

BiblioPRO is a virtual library of Quality of Life Questionnaires and other Patient Reported Outcomes (PROs) in Spanish with free and open access.

The mission of our project is to promote the adequate use of HRQL instruments in Spanish among researchers, clinicians and health management, by providing exhaustive online information, evidence-based evaluations, and specialized training in this area.

The library currently holds information on over 500 questionnaires and is updated periodically.

BiblioPRO is a CIBER in Epidemiology and Public Health Research and Knowledge Transfer Support Action, launched, directed and coordinated by the Health Services Research Unit of the IMIM, with IMIM Foundation support.

► **Quality Control Programme for the Analysis of Drugs of Abuse in Urine**

The Quality Control Programme for the Analysis of Drugs of Abuse in Urine (PCQ) has been ongoing uninterruptedly since 1986. It is an external quality control programme with a highly emphasized educational component.

The Coordinating Laboratory is the Analytical Services Laboratory for the Neurosciences Programme's Bioanalysis and Analytical Services Research

Group at the IMIM in Barcelona. Since November of 2000, the Coordinating Laboratory has been recognized as an Assay laboratory accredited by ENAC (National Accreditations Agency) following the accrediting criteria stated in Regulation EN 45001 and ISO Guide 25. Since March of 2002, the Laboratory has been accredited as an Assay Laboratory according to ISO 17025 for the analysis of drugs of abuse and medications in biological fluids, including the use of eight quantitative procedures for the analysis of drugs of abuse in urine. The PCQ works under the requirements of the ISO 43 Guide (proficiency testing by interlaboratory comparisons).

Laboratories participating in the PCQ are grouped into two categories depending on the type of analyses they perform (screening qualitative analyses and specific identification of substances and quantitative analyses) and thus the type of results they provide:

- Laboratories conducting screening analyses for groups of substances in control urine samples. In general, they use immunological analytical methods.
- Laboratories conducting, in addition to the screening analyses, identification



and in some instances quantification of substances present in control urine samples.

This distinction between laboratories based on the type of analyses they conduct is similar to that made between purely clinical and medical-legal laboratories; these two types of laboratories have different requirements with regard to the quality of the results they must provide. Thus two modalities of participation in the PQC are offered so that participating laboratories may choose the option that best meets their individual needs.



Ethical Committees

Clinical Research Ethical Committee

The Clinical Research Ethical Committee (CEIC) of Parc de Salut Mar was created and accredited on November 11, 1993 by the General Management of Health Resources of the Autonomous Government of Catalonia, in accordance with the "Ordinance dated October 26, 1992". Subsequently we were reaccredited on 19 December 2008 via the Order dated October 24, 2006; and again on 27 October 2014.

The principal duties of CEIC-Parc de Salut Mar, which are regulated by current legislation and approved by the Administrative Council of Parc de Salut Mar, are as follows:

- To evaluate the suitability of study protocols with regard to the objectives of studies, their scientific efficiency and the justification of the foreseeable risks weighed against the expected benefits for research subjects and society (risk-benefit ratio).

- To evaluate the suitability of the research team with regards to its experience and capacity to carry out the study.
- Clinical care requirements and commitments previously made to other research protocols are taken into consideration.
- To evaluate written study information to be given to participating research subjects (or to their legal representatives); to evaluate the procedure by which such information will be given and the type of consent to be obtained.
- To check the compensation and treatment being offered to research subjects in case of injury or death resulting from the study and to verify liability insurance to cover the funding agency, researchers, collaborators and the individual responsible at the center where the research is to be carried out.
- To be aware of and to evaluate the compensation to the study researchers and compensation to the subjects for their participation in the study.



- To monitor studies from the time of their inception and to follow them up until completion of the final report.

List of studies evaluated in 2014, classified by type

Clinical trials with drugs	108
Clinical trials with nutrients	6
Clinical trials with radiotherapy	1
Clinical trials with cosmetics	1
Healthcare products	6
Post-authorization studies	30
Observational studies	20
Research projects	274
TOTAL	446

Committee for Research Integrity

The Committee for Research Integrity (CIR) is a body constituted freely and voluntarily by the researchers of PRBB centres:

- Hospital del Mar Medical Research Institute (IMIM)
- Department of Health and Experimental Sciences of the Pompeu Fabra University (CEXS-UPF)
- Centre for Genomic Regulation (CRG)

- Centre for Research in Environmental Epidemiology (CREAL)
- Centre of Regenerative Medicine in Barcelona (CMRB)

Acts independently and at the complete service of researchers and the scientific community with the unique interest of giving support to the quality of research and contributing to its integrity.

Its functions are:

- To supervise the general, constant, and complete fulfilment of the guidelines of the Code of Good Scientific Practice at PRBB's centers.
- To act as an arbitration body for uncertainties or conflicts that may arise in relation to research integrity matters. Its decisions are binding for those researchers submitting their conflicts to the CIR.
- To provide information and continuously raise awareness with regard to events, necessities and orientations related to ethical and deontological aspects of biomedical research. The Committee has the commitment to request from the Governing Bodies of the Centers, the resources and measures that will contribute to the development of this function.

- To be receptive to new problems related to research integrity, to propose their discussion to our institutions and, consequently, to update the Code of Good Scientific Practice as needed.

In relation to the functions mentioned above, the Committee will guarantee, by all means, its managerial diligence, independence of action, anonymity, and confidentiality in the treatment of personal data, solvency of the information generated, impartiality in the deliberation process and equity of resolutions as well as possible allegations.

Ethical Committee for Animal Research

The PRBB has an Ethical Committee for Animal Research (CEEA-PRBB) which evaluates project procedures using experimental animals, taking into account the appropriateness of the procedure in relation to the objectives of the study, the possibility of reaching valid conclusions with the fewest animals, the effect on the animals not being disproportionate to the potential benefits of the research, and, in short, the avoidance of unnecessary suffering, as well as considering the possibility of alternative methods to the use of animals.



Communication

Press

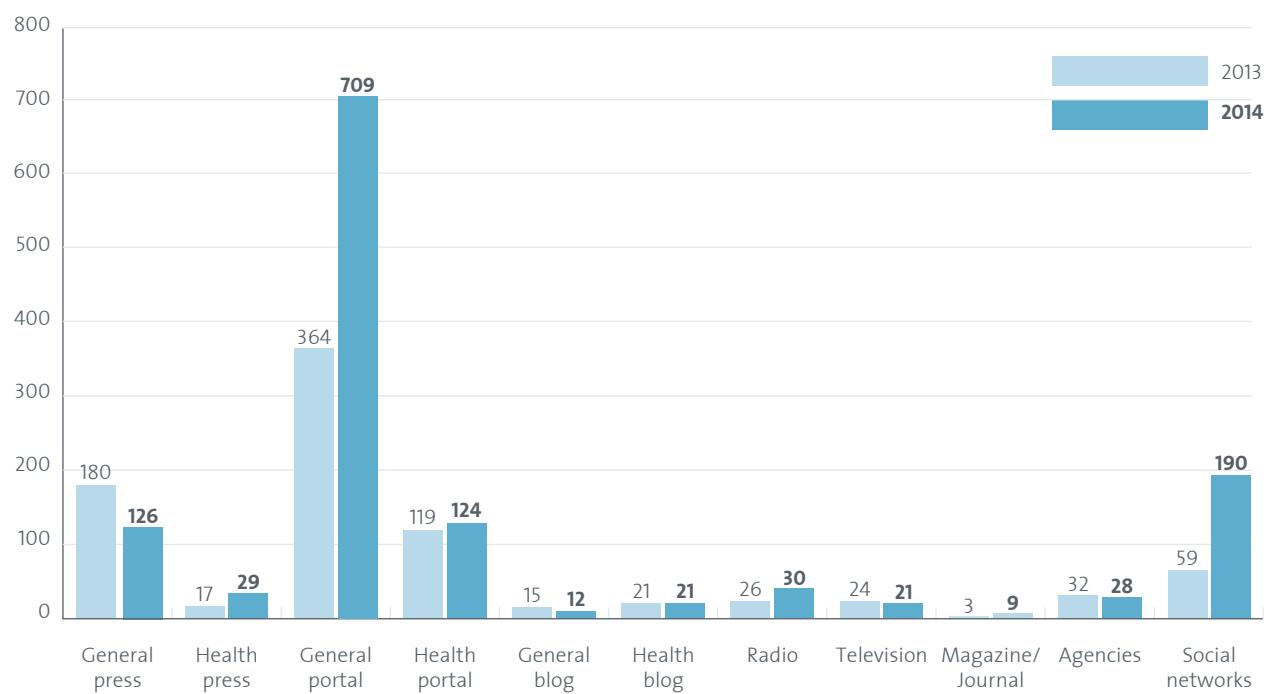
1,299 news items have appeared in the media referencing IMIM, with 469 more impacts than during the same period last year. The reason behind this significant increase is the greater interest generated by press releases issued by IMIM, the greater proliferation of digital media opening the door to a larger repercussion of news and the greater use of social networks.

Out of the news items appearing in press, 95.6% were a result of the press releases issued by the Communications Services

and only 4.4% arose from requests that were not directly linked to information issued by the institution; this shows the proactive work of the institution with the media.

The figure in the next page shows the distribution of news items appearing in the press based on the type of media picking up on the news and, as already said, there is a large increase in news items appearing in general news portals and a growing distribution (retweets) of news items generated by the IMIM on the social networks.

Distribution of news items by type of media, 2013-2014



30 press releases were issued, two more than during the same period in 2013, and 12 of these releases were issued by other institutions referencing IMIM. However,

these 30 press releases have generated 439 more impacts than in 2013. Press releases, by programmes (from newest to oldest) can be seen in the following tables.



Press Releases 2014

► Cancer Research Programme

DATE	TITLE	IMPACTS
30/06/2014	The inhibition of a protein opens the door to the treatment of pancreatic cancer, one of the tumours with the worst prognosis	145
05/05/2014	Sandra Peiró wins the 6th Fero Grant with a study on the three-dimensionality of tumour cells' DNA (*)	22
27/02/2014	Hospital del Mar introduces a last-generation genetic test that is a big advance in offering customized treatments for colorectal cancer	11
10/01/2014	New advances in the mechanism by which epithelial tumours are formed	8

► Epidemiology and Public Health Research Programme

DATE	TITLE	IMPACTS
21/12/2014	EURHOBOP, one of the 8 projects selected by the EU to be presented to healthcare experts, politicians and international journalists	21
11/11/2014	Genetic mutations inactivating the function of a gene reduce the risk of infarction by 50%	74
06/11/2014	One third of the population has a genetic mutation that doubles the risk of atrial fibrillation (*)	21
06/10/2014	Starting soon is Universal, a project that will study the mental health of young university students	23

09/09/2014	The economic impact of disorders of the brain in Spain is the equivalent of 8% of its GDP	30
02/09/2014	Strong geographic and gender differences in the occurrence, mortality and lethality of acute myocardial infarctions (*)	14
20/03/2013	A system is being developed that will enable the prediction of the incidence of myocardial infarctions over the next decade	108
24/01/2014	Measuring waist circumference would improve the detection of children and adolescents with cardiometabolic risk	68
16/01/2014	Les Borges Blanques is preparing to host the 51st edition of the Extra-Virgin Olive Oil Fair (*)	9
16/01/2014	Germans Trias creates a new calculator that increases the precision of patients' death prognosis (*)	67

► Inflammatory and Cardiovascular Disorders Research Programme

DATE	TITLE	IMPACTS
15/12/2014	Diet habits offer protection against strokes	13
05/06/2014	Researchers identify a new gene associated with haemorrhagic stroke	34
04/03/2014	Administering insulin could help prevent early kidney damage in people with diabetes	5
25/02/2014	A new key immunological mechanism to develop vaccines identified	180



► Biomedical Informatics Research Programme

DATE	TITLE	IMPACTS
10/12/2014	Experts in health “big data” highlight the importance of analysing clinical data (*)	23
06/11/2014	What are the challenges and opportunities of big data in biomedicine? (*)	16
17/09/2014	Parts of the genome without a known function may play a key role in the birth of new proteins	30
21/07/2014	Identified almost 200 genes that have evolved more rapidly in humans than in other primates	41
26/04/2014	A new investigation aims at better predicting the cardiac toxicological profile of drugs (*)	9

► Neurosciences Research Programme

DATE	TITLE	IMPACTS
12/12/2014	SOS launched to save research that improves the capacities of Down syndrome (*)	24
05/05/2014	Animal hoarding, a lesser-known problem for public health and welfare	149
27/04/2014	A component in green tea improves the learning capacities of people with Down syndrome (*)	21
14/02/2014	What neurological bases push us to show solidarity	19

(*) Press releases issued by other institutions mentioning IMIM.

See all the press releases of the year 2014:
<http://www.imim.cat/media/upload//arxius/memoria2014/notesdepremsa.pdf>

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The image shows the front cover of the magazine 'ara'. The title 'ara' is prominently displayed in a large, blue, sans-serif font at the top center. Below it, the word 'SALUT' is written in a smaller, black font. The main headline reads 'La mida de la cintura, indicatiu de risc de diabetis' (Waist circumference, risk indicator for diabetes). Below the headline, a subtext states 'Encara que l'obesitat abdominal infantil haig augmentat, aquest indicador encara no es té en compte' (Even though childhood abdominal obesity has increased, this indicator is still not taken into account). To the left of the main text, there is a small photograph of a shirtless young boy with his waist measured by a person's hand holding a measuring tape. The magazine's logo, 'ara', is also visible in the bottom right corner of the cover.

EL PERIÓDICO

INVESTIGACIÓN. La Unión Europea transfiere fondos de investigación, desarrollo e innovación, a las que desde 1984 ha destinado este programa marco. El actual programa, Innova Europa 2007, aumenta su presupuesto hasta los 80.000 millones de euros para contribuir a la recuperación de la economía europea durante el periodo 2007-2013.

Rosario de la Torre

Sociedad y Ciencia de INVESTIGACIÓN Y DESARROLLO DE NUEVOS MATERIALES EN CÁTODOS DE ALTA EFICIENCIA PARA BATERIAS

"La financiación es importante, es fundamental hoy en día tener recursos financieros"



Innovación para salir de la crisis

La UE aumenta la inversión en investigación con el objetivo de que los estados miembros lleguen al 3% de su PIB en el 2010 ■ España ha retrasado el presupuesto en I+D+i hasta niveles del 2002 y solo incrementa la partida militar

En las páginas de INVESTIGACIÓN, se detallan las principales novedades en la investigación y desarrollo de la ciencia y la tecnología. Se informa sobre las principales líneas de investigación y desarrollo que impulsan la economía y la sociedad. Se analizan las principales tendencias y desafíos que afectan a la investigación y desarrollo en el mundo. Se presentan las principales novedades en la investigación y desarrollo de la ciencia y la tecnología. Se informa sobre las principales líneas de investigación y desarrollo que impulsan la economía y la sociedad. Se analizan las principales tendencias y desafíos que afectan a la investigación y desarrollo en el mundo.

Bruselas apuesta por dar voz a la ciencia en las sociedades que solo hablan de política

1 FEDERACIÓN

2 INNOVACIÓN

3 FORTALEZA

eo





It is also important to highlight the continuity of the initiative launched in 2012 to prepare press releases only to be distributed on IMIM's website and on social networks. For these releases subjects that have a scientific and/or institutional relevance are selected, but they don't have a repercussion as press releases that would be sent to the media. This provides a new communications resource. This year, 20 web releases were issued.

Website

The website was visited 161,877 times and 518,810 pages were viewed (with an average of 3.2 pages visited). There is a significant 12% increase in the number of users and a 25% increase in the number of pages visited compared to the same period in 2013.

If we look at the origin of visits per countries we find that most are from Spain, followed the US, Mexico, UK, Argentina and Colombia, a similar trend to other years, but with an increase of visits from English-speaking countries.

The most visited pages continue to be the homepage and the job offers.

Intranet

368 news items were posted on the intranet, mostly institutional news from the IMIM, PSMAR and PRBB, with 96 news items, 72 Iforecerca items and 57 agenda items.

Iforecerca

The screenshot shows the Iforecerca website interface. At the top, there is a header with the IMIM logo and the text "Institut Hospital del Mar d'Investigacions Mèdiques". Below the header, it says "INFORECERCA" and "Núm. 416 17/07/2015". A blue bar labeled "NOVES CONVOCATÒRIES" contains several grant announcements:

- Ajuts i beques a personal tècnic o investigador
 - Research Grants Fyssen Foundation (14/10/2015)
 - FYSSSEN FOUNDATION
- Subvencions i ajuts a la recerca
 - Investigator Initiated Grants (IIGs) / Pilot Grants (PGs) - WCRF International Regular Grant Programme (02/10/2015)
 - WORLD CANCER RESEARCH FUND INTERNATIONAL - WORLD CANCER RESEARCH FUND INTERNATIONAL
 - Beca FERO 2015 (15/09/2015)
 - FERO - FUNDACIÓ PRIVADA D'ESTUDIS I RECERCA ONCOLÒGICA
 - IMI (The Innovative Medicines Initiative) 3rd call 2015 (06/10/2015)
 - Innovative Medicines Initiative (AMI)

Iforecerca is a weekly publication prepared by IMIM's Research Service, which lists the titles of all the grants published in the last week, with the possibility of accessing details about each one.

It also offers updated information about guides, legislation and any other information of interest that appears and may be useful when requesting projects or grants.

During 2014 we have published 52 Inforecera items.

IMIMa't

IMIMa't is a blog on popular science that was created in 2008 and is updated every week. Unfortunately, a series of technical problems have made it difficult to update it during most of the year and it has not been possible to count the number of visits and provide the data.

Science Outreach Events

► Open Day

Open Day is organized every year at the PRBB with professionals from all centres in the PRBB participating. The seventh edition, held on 4th October, counted with the collaboration of 245 volunteers, and almost 3,500 participated in the activities and workshops, the guided tours around the lab facilities, the scientific seminars, activities for children and a scientific café.

More than 2,300 people entered the building for the guided tours around more than 25 labs and technical and science

facilities, and around 2,000 people were able to try experiments in the square. In addition, some 725 people participated in the different scientific seminars programmed during the day and around 270 took part in the scientific café.

The activities organized by IMIM and the number of IMIM volunteers participating each year are growing; this shows the higher level of engagement of IMIM professionals to disseminate science among the general population, especially during a day that has been a great opportunity to show our everyday activities to the citizens.



► ACCÉS project

Continuing with the ACCÉS project, which is a programme allowing baccalaureate students to visit our centres, this year



9 high schools from Catalonia and 1 from Belgium visited us. In total, more than 200 students participated in the programme.

In addition to the ACCÉS project, in February we were visited by a group of 45 Biomedical Science students from the University College West Flanders in Belgium.

► Interview to a scientist (pilot test)

Last March, together with the PRBB, a pilot test was set up whereby 30 4th Grade students (aged 9 and 10) were given the opportunity to interview a scientist. In order to make the task easier for students and researchers, the schoolteachers were sent a profile of the researcher. Using this profile, the students then prepared the questions in class and the day they came for a visit the scientist answered their questions one-by-one. After answering all the questions, the students were given a tour around the building.

This project provides schools the opportunity to do some previous work on a scientific subject thanks to the documentation that is sent to them; they can then increase their knowledge directly with an expert researcher on that subject

and once they've concluded the visit, they can work on the subject in greater depth at school with the answers provided by the researcher.



► The immunology game (pilot test)

In May the Immunology game was put to the test. It is a game for children to learn about viruses, dendrite cells, NK cells, macrophages, T-cells, the epithelium and many other elements while playing. This also allows them to discover the innate immune system and the acquired immune system work. It is also useful to explain how vaccines work.

The game was tested with 5th Grade students (10-11 years old) and was developed in collaboration with the UPF and the PRBB.





Management

Management Structure

The mission of the Management Division is to provide administrative and logistic support to the researchers at IMIM.

Manager

Andreu Fort Robert

Director of Management

Balbina Ugena Villalobos

Management Secretary

María Muñoz Mullee

Purchasing

Concepción León Pérez (head of service),
Laura Erruz Peregrina, Laia Orpinell Ros,
Robert Riba Sallás

Accounts

Marta Mestres Mestres (head of service),
Ana Godall Peralta, Rosa Gras López, Marta
Rabal de Andrés

Communication/Reception

Rosa Manaut Dueñas (head of service),
Marta Calsina Freixas (communication),
M. Carmen de la Bella Toledano

(reception), Mercedes Montserrat Bayo
Romero (reception), Ana María Pérez Ruiz
(reception)

Quality

Xavier Palazón Vilarrasa (head of service)

Research

Marta López Otero (head of service), Carol
Barnwell, Teresa Macià Ubeda, Sergio Sanz
Ruiz, Meritxell Torres Paisal

Human Resources

Balbina Ugena Villalobos (head of service),
Anna Maria Adell Vallhonesta, Laia Rabal
de Andrés, Diana Sebastián Guillart,
Meritxell Tejeda Barragán, Sandra Vial
Mora

IT Resources

Joan Marc Carbó Arnau (head of service),
Ricard Albert Cabrera, Iván Martínez
Campos, Joan Vericat Barquet, Ruben Vidal
Almerge

General Services

Patxi Fernández Navarro (head of service)



Budget

External revenue achieved by the IMIM during 2014 improved compared to the previous year. More competitive projects were achieved, with a higher level of funding, especially for European and international projects. At the same time, more research contracts were awarded linked to the pharmaceutical industry, even if the clinical trials activity remained at a similar level to last year. The activity at the antidoping laboratory dropped in light of the high competition among the different laboratories. Finally, donations increased slightly, regaining the levels of previous years.

TOTAL EXTERNAL FUNDING	2014		2013	
COMPETITIVE GRANTS	7,592.49	51.8%	6,775.95	50.0%
European Commission	1,176.91	8.1%	838.89	6.2%
International	516.20	3.5%	249.51	1.8%
National	5,899.38	40.3%	5,687.55	42.0%
OTHER EXTERNAL FUNDING	7,061.12	48.2%	6,767.96	50.0%
Research Services	5,056.15	34.5%	4,805.37	35.5%
Other services	819.48	5.6%	1,000.39	7.4%
Charity	1,185.49	8.1%	962.20	7.1%
TOTAL	14,653.61	100.0%	13,543.91	100.0%

In thousands of euros.

Human Resources

On 31 December 2014, IMIM had 689 people belonging to the different institutions forming the Institute, distributed as shown.

Distribution of IMIM personnel by functions (31 December 2014)

PROGRAMME	RESEARCHER	PRE-DOCTORAL	TECHNICIAN	SUPPORT	TOTAL
Cancer	86	22	31	3	142
Epidemiology and Public Health	47	18	33	16	114
Biomedical Informatics	14	5	18	3	40
Neurosciences	91	34	48	10	183
Inflammatory and Cardiovascular Disorders	94	25	43	4	166
Management	1	-	1	32	34
Scientific and Technical Services	1	-	8	1	10
TOTAL	334	104	182	69	689

Governing Bodies

Board of Trustees

The Board of Trustees is the top governing body of the Foundation and is comprised of representatives from the Catalan Ministry of Health, Parc de Salut Mar, the Catalan Ministry of Economy and Knowledge and the universities Pompeu Fabra (UPF) and Autonomous University of Barcelona (UAB).

Chair

Minister of Health. Government of Catalonia
Boi Ruiz Garcia

First Vice-president

Minister of Economy and Knowledge. Government of Catalonia
Andreu Mas Colell

Second Vice-president

Vice-president of the Governing Council. Consorci Parc de Salut Mar de Barcelona
Cristina Iniesta Blasco

Third Vice-president

Rector of the Autonomous University of Barcelona.
Ferran Sancho Pifarré

Fourth Vice-president

Rector of the Pompeu Fabra University.
Jaume Casals Pons

Ex-officio member

General Director for Research Ministry of Economy and Knowledge. Government of Catalonia
Josep Maria Martorell Rodon

Executive Committee

Members

Appointed by the Ministry of Health. Government of Catalonia:

Carles Constante Beitia; Carles Miquel Collell;
Gabriel Capellá Munar.

*Appointed by the Ministry of Economy and Knowledge.
Government of Catalonia:*

Antoni Castellà Clavé, Iolanda Font de Rubinat
García, Lluís Rovira Pato.

*Appointed by Consorci Parc de Salut Mar de
Barcelona:*

Felip Bory Ros, Olga Pané Mena, Aureli Rubio
Alcolea, Narcís Pérez de Puig (Secretary)

*Appointed by the Autonomous University of
Barcelona:*

Lluís Tort Bardolet

Appointed by the Pompeu Fabra University:

Francesc Posas Garriga

*Appointed by the Fundació Centre de Regulació
Genòmica:*

Antoni Castellà Clavé

*Appointed by the Fundació Centre de Recerca en
Epidemiologia Ambiental:*

Isabel Hernández Cardona

*Appointed by the Consorci Parc de Recerca
Biomèdica de Barcelona:*

Jordi Camí Morell

Chair

*Catalan Health Institute (ICS). Ministry of Health.
Government of Catalonia:*

Carles Constante Beitia.

Members

*General Research Director Ministry of Economy and
Knowledge:*

Josep Maria Martorell Rodon

*Appointed by the Ministry of Economy and
Knowledge:*

Lluís Rovira Pato

*Appointed by the Autonomous University of
Barcelona:*

Lluís Tort Bardolet

Appointed by the Pompeu Fabra University:

Francesc Posas Garriga

*Appointed by the Barcelona Mar Health Park
Consortium:*

Olga Pané Mena

Narcís Pérez de Puig (Secretary)

IMIM

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UAB
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Pompeu Fabra
Barcelona

CRG Centro
de Recerca
Gènica

CMR[B] Centro
de Medicina
Regenerativa



Parc
Recerca
Biomèdica
Barcelona

f fundació IMIM

 Generalitat
de Catalunya

 Institut
CERCA
Centres de Recerca
de Catalunya

 Instituto
de Salud
Carlos III

 *iCrea
Instituto
de Salud
Carlos III

